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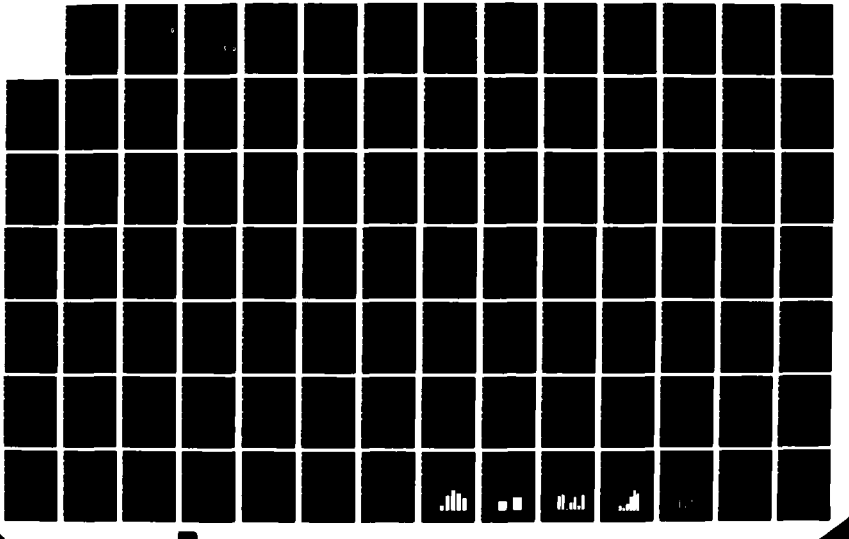

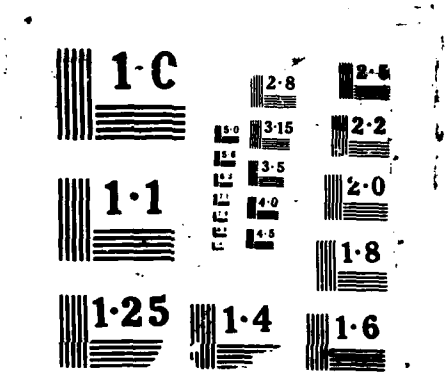
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ANALYSIS OF THE PERCEIVED ACCURACY OF AIR FORCE CIVIL ENGINEERING PRIME BEEF SORTS REPORTS

THESIS

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AFIT/GEM/DEM/87S-22

ANALYSIS OF THE PERCEIVED ACCURACY OF AIR FORCE CIVIL ENGINEERING PRIME BEEF SORTS REPORTS

THESIS

Presented to the Faculty of the School
of Systems and Logistics
of the Air Force Institute of Technology
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In Partial Fulfillment of the
Requirements for the Degree of
Master of Science in Engineering Management

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Thomas J. Schluckebier

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Abstract

This study examined the perceptions of Air Force Civil Engineering Prime BEEF managers and BCEs concerning the Prime BEEF SORTS report's ability to accurately assess the readiness of Prime BEEF teams. Prime BEEF managers and BCEs throughout the CONUS were surveyed to determine their overall perceptions of SORTS report accuracy. The survey responses were analyzed collectively, and with respect to two pairs of treatment groups: Prime BEEF managers and BCEs, and respondents with deployment experience versus respondents without deployment experience.

The results indicated that, when directly confronted with the question, CONUS Prime BEEF managers and BCEs were undecided about whether the SORTS report provided an accurate assessment of Prime BEEF readiness. However, the results also indicated that the respondents tended to agree that the SORTS report did not consider all aspects of readiness, and that the Prime BEEF managers and BCEs did not feel that the SORTS was the best readiness estimating technique. The respondents also perceived a problem with the accuracy of the training C-level based on the lack of training standardization and the absence of proficiency/knowledge level requirements. The respondents consistently recommended significantly higher C-1 readiness level requirements. The results also indicated that the respondents were undecided about the clarity, ambiguity, and

ease of interpretation of the SORTS rating criteria. Finally, the results showed that neither job description or deployment experience influenced the perceptions of the Prime BEEF managers and BCEs.

Based on the findings, the study concluded that the SORTS report did not provide an accurate assessment of Prime BEEF readiness, and that the training C-level was the primary source of SORTS report inaccuracy.

ANALYSIS OF THE PERCEIVED ACCURACY OF AIR FORCE CIVIL ENGINEERING PRIME BEEF SORTS REPORTS

I. Introduction

Overview

This chapter gives background information on the Status of Resources and Training System (SORTS) and Air Force Civil Engineering's Prime Base Engineer Emergency Force (BEEF). Following the background information, the justification for the proposed research, problem statement, and investigative questions are provided. The chapter closes with the scope and limitations of the proposed research, and the definitions of frequently used terms.

Background Information

A 1964 Department of Defense (DOD) directive made it mandatory that "the current combat readiness status of U.S. Armed Forces be maintained to provide required information to NCA (National Command Authority) and JCS (Joint Chiefs of Staff)" (21:2). To help meet the demands of this directive, the Air Force Status and Identity Report system was established in 1968 (21:2). Thus, FORSTAT became the first forerunner of the current readiness reporting system known as SORTS.

As time passed, several government agencies identified problems in the FORSTAT system. Specifically, the FORSTAT

reporting criteria were not being uniformly interpreted, the FORSTAT was unable to satisfactorily show capability, and the system was perceived as being generally inaccurate. The JCS initiated changes to the FORSTAT system in January 1979, and in April 1980, a revised FORSTAT system was adopted. This new system was called the Unit Status and Identity Report (UNITREP) system (21:2-3).

The FORSTAT system only required combat unit readiness status reporting. Under UNITREP, "combat support and combat service support units were given the option of reporting" (7:34). Air Force Engineering and Services leaders felt that their mobility programs could benefit from participation in the new reporting system, and therefore initiated a program whereby Air Force Civil Engineering Prime BEEF teams began reporting their status of readiness (7:34-35).

Although this was the first time Prime BEEF teams would be required to report their readiness status, the concept of readiness was not a new one to the Civil Engineering community. Indeed, combat support readiness was the main reason for the continued existence of the CONUS (Continental United States)-based military engineer. In 1963, Congress was considering a move to civilianize the CONUS civil engineering function. In December 1963, a joint Civil Engineering/Manpower and Organization study group was formed to evaluate the issue. The group determined that Civil Engineering military forces were not properly organized, trained or equipped to perform their wartime mission.

Additionally, the study recommended that CONUS-based military engineers be used to provide additional combat support during wartime. As a result, Project Prime BEEF was implemented in October 1964 (4:40-45). This implementation marked "the first time, Air Force Civil Engineering had structured a force in an attempt to meet its wartime responsibilities" (4:43).

Soon after its inception, the Prime BEEF concept was put into action. In July 1965, Air Defense Command (ADC) Air Training Command (ATC) and Strategic Air Command (SAC) were each tasked to provide one 25-man Prime BEEF team in support of a deployment to the Republic of South Vietnam (RVN). The teams were to be deployed for 120 days to construct revetments at Bien Hoa, Tan Son Nhut, and Danang (4:48:50).

> This group of three teams became known as Prime BEEF I. Their accomplishments during their 120-day TDY not only provided greater protection for US combat aircraft but, of greater significance, had validated the Prime BEEF concept [4:50].

Following the success of Prime BEEF I, many other teams were sent to the RVN to provide additional combat support. By January 1967, 30 individual teams involving nearly 1000 personnel had been deployed (4:51). The overall success of these teams was noted by the Director of Civil Engineering, HQ USAF, Major General Robert M. Curtin:

> The results in SEA (Southeast Asia) prove out our concept of a team of highly qualified personnel specifically tailored for a given task.... The work achieved by these small, well qualified, and highly motivated teams has indeed been impressive. Most importantly, their accomplishments have been impressive to Air Force commanders at all levels [10:1].

After the Vietnam conflict, the emphasis of the Prime BEEF program was redirected at countering the increasing conventional warfare capabilities of the Soviet Union. Military leaders saw the need for high sortie generation rates, and short or no-notice deployment capability (13:5). This change in emphasis meant that Prime BEEF teams had to be able to deploy as quickly as possible - a task that would require an even higher degree of combat support readiness.

In order to reduce confusion, and allow for rapid deployment in time of conflict, Prime BEEF Contingency Force (CF) teams were established in 1978 (25:11; 15:3). Civil Engineering military personnel were assigned to a specific CF team. Each of the six different teams had a specific mission, and was assigned a predetermined number of personnel to accomplish that mission. For instance, the CF-1 team's primary mission was rapid runway repair (RRR). Consequently, CF-1 was assigned "21 people primarily from pavements and ground specialties" (14:109). Each CONUS base was assigned CF team taskings based on their ability to fill their teams (14:11).

It was under the new CF posture that Prime BEEF teams first reported their readiness status. Under the UNITREP system, combat ratings (C-ratings) were determined for a reporting unit "to indicate readiness for potential contingency operations" (7:34). Five different C-ratings were possible:

C-1, Fully Combat Ready A unit possesses its prescribed levels of wartime resources and is trained so that it is capable of performing the wartime mission for which it is organized, designed, and tasked.

C-2, Substantially Combat Ready A unit has only minor deficiencies in its wartime level of resources or training.

C-3, Marginally Combat Ready A unit has major deficiencies in its wartime level of resources or training, which limit performance capability.

C-4, Not Combat Ready A unit has major deficiencies in wartime resources or training and thus cannot effectively perform its wartime mission.

C-5, Service Programmed, Not Combat Ready Due to service program(s), a unit does not possess the prescribed wartime resources or cannot perform the wartime mission for which it is organized, designed, or tasked. (For example, ships in overhaul and units undergoing major equipment conversion/transition) [21:2].

The procedures for calculating C-ratings were contained in AFR 55-15, Unit Combat Readiness Reporting. CONUS-based Prime BEEF teams reported C-ratings in three resource areas: personnel, training, and support equipment and supplies. A fourth area, combat essential equipment, did not apply to CONUS-based Prime BEEF teams; however, if a team was deployed with this type of equipment, it was required to report on this area also (16:53-57). A percentage was calculated for each measured resource area based on the number or amount available or completed, divided by the number or amount required. These percentages were then converted to C-ratings using the C-rating criteria tables. Generally, the lowest measured resource area C-rating was used as the overall unit C-rating; however, the commander could choose to report a

lower or higher "rating based upon an assessment of overall unit capability" (7:34). All unit and resource area C-ratings, as well as the corresponding percentages were classified confidential (15:16).

In 1981, a revision to AFR 55-15, Unit Combat Readiness Reporting, was initiated in an effort to standardize the UNITREP criteria. The Civil Engineering UNITREP criteria "were criticized for non-standardization in two measurement areas - critical personnel and training" (7:35).

The personnel reporting problem was identified in Air Force Inspector General (IG) reports that stated that the free substitution of personnel with any Air Force Specialty Code (AFSC) into Prime BEEF team positions had hidden the shortage of certain required AFSC's. HQ USAF initiated action to correct the problem by discontinuing the free substitution policy. "If the required AFSC was not available, then the position, though manned by an individual with another AFSC, would be considered vacant for UNITREP purposes" (7:35).

The training reporting problem resulted from the fact that Civil Engineering calculated its training percentages by dividing the number of training requirements that had been completed by available personnel, by the total number of training requirements for all available personnel. This was changed to meet the standard UNITREP practice of calculating training percentages by dividing the number of training requirements that had been completed by available personnel,

by the total number of training requirements for the team. This meant that a team's training percentage was always less than or equal to the total personnel percentage. This change caused a decrease in the reported training percentages, and a corresponding decrease in Prime BEEF training C-ratings (7:35).

The latest change in the Prime BEEF program occurred in 1984 when all Prime BEEF teams were repostured and redesignated as "PB" teams. The PB teams were organized and manned as follows (12:45-52):

Team	Personnel Required	Team Description
PB-1	13	Base Engineer Management Team
PB-2	45	Basic Support Team
PB-3	25	Limited Support Team
PB-4	12	RRR Equipment Operations Team
PB-5	Reserved for possible future use.	
PB-6	3	Fire Protection Management Team
PB-7	12	Fire Protection Operations Team
PB-8	3	Fire Protection Management Team
PB-9 through PB-26	3	Specialty Teams

> The foremost advantages of the PB team structure are that it provides for the best match of Prime BEEF forces against projected wartime requirements at specific sites, is adaptable to the various rapid runway repair (RRR) concepts, and allows many more wartime critical engineering personnel to be assigned to mobility teams, and all with an exact match for their specialty area [13:5].

This new structure would tend to compensate for the personnel and training adjustments made in 1981, and therefore created higher C-ratings (7:35).

Although the team structure has changed, the basic procedures and rules for reporting Prime BEEF readiness level still apply. One exception is that the 3-person specialty teams are not rated separately (as all CF teams were), but are included in a combined team rating with all unit Prime BEEF teams.

The personnel C-rating is calculated using percentages for critical personnel and total personnel. Critical team positions are designated in AFR 93-3, Air Force Civil Engineering Prime Base Engineer Emergency Force (BEEF) Program. Most Prime BEEF team positions are critical (12:46-52). The critical personnel percentage is calculated by determining the total number of personnel available to fill the critical positions, and dividing that number by the total number of critical personnel a unit is tasked to provide. The total personnel percentage is calculated by determining the total number of personnel available to fill all team positions, and dividing that number by the total number of personnel required to fill all team positions (15: 12,54). The personnel C-rating is determined using the following criteria (15:16):

If the lower percentage of the following is

Total Personnel	Critical Personnel	The unit's personnel C-rating is:
90-100	85-100	C-1
80- 89	75- 84	C-2
70- 79	65- 74	C-3
0- 69	0- 64	C-4

The equipment and supplies on hand measured area percentage is calculated using the lowest percentage calculated for six different categories for equipment and supplies. The categories include individual tool boxes, mobility bags, fire fighter clothing, individual weapons, ammunition, and PB-2 and PB-3 team tool kits. Each category percentage is calculated by dividing the total number of items available by the total number of items required (15:55-56). The equipment and supplies C-rating is calculated using the following criteria (15:55-56):

If the lowest percentage is:	The equipment and supplies C-rating is:
90-100	C-1
80- 89	C-2
65- 79	C-3
0- 64	C-4

The training measured area percentage is calculated using the lowest percentage from two training categories. Category I training is generally accomplished in a classroom environment through the use of movies, briefings, or other conventional teaching techniques. Category I training includes Prime BEEF orientation, military sanitation, explosive ordnance reconnaissance, expedient methods, and classroom security training (12:21-22). The Category I

training percentage is calculated by summing the number of completed training requirements in these areas, and dividing that number by the total requirement for the five areas. Category II training is task oriented. It includes vehicle operations, chemical warfare, RRR, weapons, and field training (12:22-23). The Category II percentage is calculated using the same procedure used for Category I (13:31). The training C-rating is calculated using following criteria (13:31):

If the lowest percentage from category I and II is:	The training C-rating is:
100-85	C-1
84-70	C-2
69-55	C-3
less than 54	C-4

As stated earlier, the unit commander determines the final overall unit C-rating "based not only on objective ratings for each of the resource areas, but also on the unit commander's assessment of various other factors that contribute to the overall readiness capability" (15:56). CONUS Prime BEEF units are required to submit a readiness status report monthly, or "when any measured area rating or unit overall C-rating changes" (15:7).

The latest change in readiness reporting was communicated in an August 1986 JCS message. The message changed the title of the reporting system from UNITREP to SORTS. Additionally, the directive changed the meaning of the prefix "C" (in C-1 through C-5) from "combat" to "category", and

substituted "level" for "rating" (in C-rating). Finally, the directive changed the definitions of the category levels as follows (24:2):

> C-1 - unit possesses the required resources and is trained to undertake the full wartime mission for which it is organized or designed.
>
> C-2 - unit possesses the resources and has accomplished the training necessary to undertake the bulk of the wartime mission for which it is organized or designed.
>
> C-3 - unit possesses the resources and has accomplished the training necessary to undertake major portions of the wartime mission for which it is organized or designed.
>
> C-4 - unit requires additional resources and/or training in order to undertake its wartime mission. But if the situation dictates, it may be directed to undertake portions of its wartime mission with resources on-hand.
>
> C-5 - unit is undergoing is undergoing a service-directed resources change and is not prepared at this time to undertake the wartime mission for which it is organized or designed.

The reason for this terminology change was to eliminate "the evaluative terminology formerly associated with the system" (24:2).

In order to relate these C-level definitions to Civil Engineering, it is necessary to know the wartime mission for which Prime BEEF was organized and designed. That wartime mission includes:

a) emergency repair of wartime damage to air bases,

b) force beddown of Air Force units and weapons systems,

c) operations and maintenance of Air Force facilities and installations,

d) crash rescue and fire suppression, and

e) construction management of emergency repair of war damage and force beddown (23:2).

In an effort to better enable Prime BEEF teams to accomplish their missions, a new team structure is due to be implemented by 1 October, 1987. The new Prime BEEF Combat Support (CS) structure will consist of 50, 100, 150 and 200 person teams (2:7).

> The basis premise of the new engineer support concept is that flying units will have organic engineer support capable of performing those engineer wartime tasks associated with sortie generation. Specific engineering units will be 'tied' with specific flying units [2:5].

Although the size and structure of the Prime BEEF teams will be significantly changed, the new CS team concept will not affect the methodology or criteria used to determine the SORTS C-levels (2:11).

Justification For Study

The importance of readiness has been a constant point of emphasis among the leaders in the Civil Engineering community. Major General William Gilbert, former Director of Air Force Engineering and Services, stated that "readiness is the primary mission of Air Force Civil Engineering" (22:1). His successor, Major General Clifton D. Wright also stressed the importance of Civil Engineering readiness by stating that "No element of base activity is more important than being prepared to shift into wartime

mode" (23:4). Major General George E. Ellis, the current Director of Engineering and Services, also views readiness as an important issue. He states, "We must prepare to go to war. That's why we're in business; it's our number one priority" (19:3).

Since Civil Engineering leaders have established that it is important for Prime BEEF teams to maintain a state of readiness adequate to meet wartime requirements, it is logical that the measuring and reporting of readiness levels is also of primary importance.

> Inaccurate or tardy evaluations distort assessments that affect contingency decisions, obscure material condition trends, and undermine the process of setting priorities and allocating resources for correcting readiness deficiencies [13:29].

Additionally, the importance of the readiness status information is underscored by the fact that this information is used by commanders and staffs at all levels "when considering units for deployment or employment, and when making recommendations to the National Command Authority" (12:28).

"The goal of Prime BEEF reporting is to provide an accurate assessment of Prime BEEF readiness to accomplish contingency and combat support missions" (12:28). Several sources suggest that this goal is not being met.

From a DOD standpoint, the accuracy of the SORTS has been questioned. A 1984 General Accounting Office report stated that "the accuracy, validity, and timeliness of the data provided by reporting units is suspect" (21:11). The

report noted that "the (SORTS rating) criteria are general and allow for subjective judgement in application" (21:14).

Additionally, several high-level sources have commented on the deficiencies of the SORTS. For instance, Charles W. Grover, Deputy Assistant Secretary of Defense for Program Integration stated that "the system doesn't measure the more subjective aspects that contribute heavily to readiness and combat capability - things like morale, leadership and innovation" (26:14). Former Defense Secretary Melvin R. Laird also had negative comments about the SORTS.

> Laird charged that the system breeds a potential for excessive zeal in reporting . Officers climbing the career ladder may hesitate to pass on the 'bad news' that they cannot carry out their mission.... Laird also wrote that the criteria that determine C-ratings permit a unit to be deemed mission capable - rated at least C-3 - when it possesses only half its needed wartime assets [26:14].

From a Prime BEEF level, a 1984 Readiness Project Innovative Management Achieves Greater Effectiveness (IMAGE)/Functional Review Workshop cited readiness reporting as one of its major topics. This topic was chosen in an effort to "make readiness ratings realistic and valuable" (3:4). Although the Project Image report did not publish the results of this investigation, the fact that the topic was chosen suggests that Prime BEEF readiness reporting is perceived as being inaccurate.

Another source that suggests that Prime BEEF readiness reporting may not be accurate was a 1984 summary of Air Force Inspector General (IG) reports from six major commands. The

summary noted that a number of C-ratings were calculated using incorrect personnel strengths and inaccurate equipment inventories (28:7).

Perhaps the strongest justification for investigating the accuracy of Prime BEEF readiness reporting is contained in previous Prime BEEF studies that questioned the adequacy of the Prime BEEF training program. A 1980 Air Force Institute of Technology (AFIT) thesis that surveyed Civil Engineering officers holding key base-level positions found that the Prime BEEF training requirements in AFR 93-3, Air Force Civil Engineering Prime Base Engineer Emergency Force (BEEF) Program, did not result in adequate training (25:89). In his 1984 AFIT thesis, Captain Emmitt G. Smith describes an Air Force IG Functional Management Inspection of Civil Engineering Contingency Readiness conducted from 2 February 1981 to 8 January 1982. Captain Smith states that the IG report revealed major training shortfalls and concluded that "the Prime BEEF Home Station training program was not fully preparing Prime BEEF units for their wartime role" (30:35). As a result of his research, Captain Smith discovered that the time spent on Prime BEEF training varied significantly from base to base. Annual yearly training time varied from just over 13 hours per team member, to 393 hours per team member. Captain Smith stated that "these widely varying training times indicates [sic] the need for measurable proficiency and evaluation standards" (30:147).

If, as these reports suggest, Prime BEEF training is inadequate and inconsistent, the readiness of Prime BEEF teams is being inaccurately reported, since the SORTS reports training readiness C-ratings are based on the amount of training completed, not adequacy or duration. The authors of the previously cited 1980 thesis realized this problem when they stated:

> It is one thing for the BCE (Base Civil Engineer) to report that his ... teams are qualified in rapid runway repair, if these teams have in fact received this type of training at the AFESC (Air Force Engineering and Services Center). It is quite another if the BCE is reporting that his teams are qualified if they have seen an eleven-minute film concerning the subject. Readiness reporting will never be consistent and accurate if this condition is not clarified [25:101].

The two researchers continued by expressing the need for research in this area:

> The accuracy and adequacy of the Prime BEEF reporting system should be investigated to determine if the reported training status actually reflects the training being conducted and if the reported training status adequately describes the status of the team [25:102].

Additionally, the importance of this research can also be seen from a warfighting perspective. Specifically, if the readiness of Prime BEEF teams is not accurately measured and reported, the potential exists for Prime BEEF team readiness deficiencies to go unnoticed. If these readiness deficiencies are unnoticed, they will probably not be corrected. If they are not corrected, USAF Prime BEEF teams may fail in their attempts to perform their wartime mission. Certainly the inability of Prime BEEF teams to perform their

combat support role would have a devastating effect on the Air Force's warfighting capability.

Specific Problem/Research Question

This research examines the following question: Does the Prime BEEF SORTS report provide an accurate assessment of Prime BEEF readiness to accomplish contingency and combat support missions?

Investigative Questions

The following investigative questions will be answered to help solve this research question:

1. Do CONUS BCE's and Prime BEEF managers believe that the SORTS reports provide an accurate assessment of Prime BEEF readiness to accomplish contingency and combat support missions?

2. Do CONUS BCE's and Prime BEEF managers believe that, in addition to the training, equipment, and readiness areas, other measurable factors should be considered when estimating the readiness of a Prime BEEF team?

3. Do CONUS BCE's and Prime BEEF managers believe that the SORTS report rating criteria are clear, unambiguous, and easily interpreted?

4. How do the CONUS BCE's and Prime BEEF managers rank the three resource area C-levels with respect to accuracy?

5. Do CONUS BCE's and Prime BEEF managers believe that the SORTS report is the best way to estimate a Prime BEEF team's readiness?

6. Do CONUS BCE's and Prime BEEF managers with Prime BEEF deployment experience have a different perception of the SORTS report than those with limited experience?

7. Do the CONUS BCE's and Prime BEEF managers perceive a problem with the accuracy of the training C-level based on the fact that Prime BEEF training is not standardized throughout the Air Force, and proficiency/knowledge levels have not been set?

8. What minimum percentage of required training do the CONUS BCE's and Prime BEEF managers believe is necessary for a Prime BEEF team to be able to successfully undertake the full wartime mission for which it was designed?

9. What minimum percentage of required personnel do CONUS BCE's and Prime BEEF managers believe is necessary for a Prime BEEF team to be able to successfully undertake the full wartime mission for which it was designed?

10. What minimum percentage of required equipment and supplies do CONUS BCE's and Prime BEEF managers believe is necessary for a Prime BEEF team to be able to successfully undertake the full wartime mission for which it was designed?

11. Does the CONUS BCE's perception of the SORTS report differ from that of the CONUS Prime BEEF manager?

12. Do the C-1 percentages suggested by research questions 8, 9 and 10 differ from those mandated by AFR 55-15, Unit Combat Readiness Reporting?

Scope and Limitations

Although many DOD units report their state of readiness via the SORTS report, this study will only investigate the perceptions of those officers responsible for reporting the readiness of CONUS-based, Air Force Civil Engineering Prime BEEF teams. This research effort will not attempt to establish the accuracy of the SORTS report; it will collect and analyze the perceptions of those CONUS-based civil engineers who are required to prepare and sign the document in accordance with Prime BEEF program requirements.

Definitions

The following frequently used terms are defined as shown next:

Status of Resources and Training (SORTS) Report. The document through which units report their combat readiness (15:1).

Prime Base Engineer Emergency Force (BEEF). "a highly skilled, mobile military combat engineering force capable of rapid response for worldwide contingency operations" (12:6).

Readiness.

> Ability of forces, units, weapon systems, or equipments to deliver the outputs for which they were designed (includes the ability to deploy and employ without unacceptable delays) [21:5].

Continental United States (CONUS).

> United States territory, including the adjacent territorial waters, located within the North American Continent between Canada and Mexico, excluding Alaska and Hawaii [12:39].

Summary

This chapter provided background information on the SORTS and Prime BEEF. Additionally, it reviewed several sources of justification for this study, and presented the research question and the investigative questions. Finally, the chapter closes by stating the scope and limitations of this study, and defining some of the key terms.

II. Methodology

Overview

This chapter explains the methodology used to investigate the research question posed in Chapter I. It contains justification for the survey approach, a description of the universe, the data collection plan, and the statistical tests that were used to analyze the data.

Justification

The research question posed in Chapter I sought to determine if the SORTS report was providing an accurate assessment of Prime BEEF readiness. A logical approach suggests that the best way to answer this question would be to compare some observed levels of Prime BEEF readiness to the corresponding reported levels of readiness. This could be done using an experimental design in which Prime BEEF teams were subjected to a wartime scenario. The teams' performances in this scenario could be compared to their C-level, and any significant differences would indicate SORTS inaccuracies. This type of design would be extremely costly and time-consuming, and therefore was not feasible under the constraints of this study.

Since the experimental design outlined above was not feasible, another methodology had to be selected that would result in data pertinent to the research question. Instead of performing the experiment, this study sought the opinions

and perceptions of individuals who should be able to intelligently hypothesize about the outcomes of such an experiment: the CONUS Prime BEEF Manager and the CONUS BCE.

The survey approach was chosen as the means to collect these opinions and perceptions for several reasons:

1. The CONUS Prime BEEF managers and CONUS BCE's were spread over a large geographic area, making personal interviews unfeasible.

2. The large number of individuals in the universe also made personal interviews impractical.

3. The survey method should encourage honest responses, since it assures anonymity of the respondents (18:184).

4. The survey method facilitates the gathering of large amounts of data without requiring a large amount of time from the respondent (18:186-187).

Instrument

A single survey was sent to each member of each universe. The survey questions were developed using the following procedures and guidelines (11:2-4):

1. The questionnaire was kept as short as possible to enable respondents to complete it quickly.

2. Questions were worded in a clear and distinct manner to prevent respondent error due to misinterpretation

3. Definitions of key words were provided on the first page of the questionnaire to insure that respondents understood the questions.

4. Respondents were allowed to mark their answers directly onto the questionnaire, rather than onto a coded answer sheet.

5. Anonymity was assured to encourage truthful response to the survey questions.

6. Demographic questions were placed at the end of the survey.

To add validity to the survey, it was pretested on members of the 1987S AFIT GEM class with Prime BEEF management experience. Additionally, the survey was given to the readiness management instructor at the AFIT School of Civil Engineering and Services. Feedback from these two sources was used to improve the questionnaire.

Description of the Universe

For the purposes of this study, a universe is defined as "the collection of all objects of interest" (8:87). In this study, the universe consists of all CONUS Prime BEEF managers and all CONUS Base Civil Engineers. This universe was selected because the individuals in the universe are responsible for generating the SORTS reports for their units.

A CONUS Prime BEEF manager is an officer or non-commissioned officer (NCO), based in the Continental United States (CONUS), responsible for the over-all management of a unit's Prime BEEF program. One of the CONUS Prime BEEF manager's specific responsibilities is the monthly preparation of the SORTS report (12:11).

A CONUS BCE is an officer, based in the CONUS, responsible for all aspects of the Base Civil Engineering organization's missions. One of the CONUS BCE's specific responsibilities is the "assessment of unit Prime BEEF capabilities" for unit readiness reporting (12:11).

The universes were limited to CONUS-based Prime BEEF managers and BCE's because the literature tends to question the accuracy of readiness reports produced by this universe.

Readiness experts from the Air Force Engineering and Services Center at Tyndall Air Force Base, Florida identified 79 CONUS bases tasked with Prime BEEF teams (1:1-4). A list of these bases is in Appendix A. Each CONUS base tasked with a Prime BEEF team should have a Prime BEEF manager and a BCE.

Sampling Plan

Since both universes were relatively small, a census was feasible. A 1980 AFIT thesis that surveyed the same universe had a return rate of 72.8% for the CONUS Prime BEEF managers, and 51.9% for the CONUS BCE's (25:38). Based on this data, a conservative estimate for the anticipated return rate was 45%. This corresponded to a sample size of 72 which was determined to be more than sufficient to conduct statistical tests on the total sample using the normal approximation. Use of the normal approximation in tests involving subsets of the total sample would be contingent on the sample size of the individual subsets (17:201).

Data Collection Plan

This study used two primary sources of information: the literature review, and the surveys on SORTS report accuracy. The literature review provided the background on the development of readiness rating reports and the Prime BEEF program. It also described the current methodology used in determining a Prime BEEF unit's readiness status. The surveys on SORTS report accuracy provided the descriptive and analytical data. The survey used to gather the primary data is in Appendix B. Two types of data were gathered through the surveys: quantitative and qualitative. The quantitative questions collected the following demographic information about the respondents:

1. Position (Prime BEEF manager or BCE)
2. Rank
3. Experience with SORTS (or UNITREP)
4. Major Command
5. Prime BEEF deployment experience.

The qualitative questions were used to determine respondents' opinions and perceptions of the accuracy of the SORTS report.

On March 23, 1987, two surveys were mailed to each CONUS base tasked with Prime BEEF teams. One survey was addressed to the Prime BEEF manager, and one to the BCE. A total of six weeks was allowed for survey responses.

Since the BCE's and Prime BEEF managers are typically knowledgeable and experienced in both readiness reporting and

Prime BEEF program management, they were assumed to be the most qualified to assess the accuracy of the SORTS report. It was also assumed that these individuals would provide honest answers to the survey questions.

Data Classification

The information collected through the survey consisted of nominal, ordinal, interval, and ratio level data. The demographic questions concerning position, rank, major command and deployment experience collected nominal data. The demographic question concerning individual's personal SORTS experience level collected ordinal data. The two rank ordering, qualitative questions regarding resource area accuracy (pertaining to investigative question 4) and alternate readiness evaluation methods (pertaining to investigative question 5) also collected ordinal level data. The five point Likert scale questions collected interval level data (25:26;23:31). The questions that required specific percentages (pertaining to investigative questions 8 through 10) collected ratio level data. The level of data collected was important in determining what type of statistical test could be used to analyze the data (18:46-49).

Statistical Tests

The four types of measurement questions that were used in this study included: Likert scale questions, rank ordering questions, percentage questions, and an open-ended question. The analysis of data from each type of question

required different statistical techniques. Additionally, the investigative questions made it necessary to analyze the data with respect to two pairs of treatment groups:

1. CONUS BCE's versus CONUS Prime BEEF Managers

2. Individuals with deployment experience versus individuals without deployment experience.

Likert Scale Questions. A Likert Scale question is one in which the respondent is required to indicate his level of agreement with a specific statement (29:366). This type of question was used because it is the simplest and most frequently used technique for gauging a respondent's perceptions or opinions; however, despite its simplicity, "the technique stands up remarkably well when compared to more sophisticated approaches" (20:284-285).

The data from the Likert scale questions was initially analyzed using a VIP Professional (5) spreadsheet program that was run on a personal computer system. The VIP Professional program was chosen because it allowed for easy, versatile and user-controlled data entry and analysis. This program calculated the mean response to each question and the standard deviation of the responses to each question. Additionally, the program calculated the means and standard deviations for the different treatment groups. The program also produced histograms of the relative response frequencies for each question with respect to the different treatment groups, and the total universe. The relative frequency histograms were used to "rapidly and pictorially

give a good idea of the shape of the data's distribution" (8:17).

The following criteria were used to analyze the Likert scale question responses (24:28-29):

1. The individual responses were converted to numerical answers using the following criteria:

   a. Strongly Disagree = 1

   b. Disagree = 2

   c. Neutral = 3

   d. Agree = 4

   e. Strongly Agree = 5.

2. Response means for individual questions were analyzed using the following criteria:

   a. If the mean response was greater than or equal to 1.0, but less than 1.5, it was concluded that the respondents "strongly disagreed" with the question statement.

   b. If the mean response was greater than or equal to 1.5, but less than 2.5, it was concluded that the respondents "disagreed" with the question statement.

   c. If the mean response was greater than or equal to 2.5, but less than 3.5, it was concluded that the respondents were "undecided" about the question statement. However, if the mean response was less than 2.75, but greater than or equal to 2.5, it was concluded that the respondents were "undecided, but tended to disagree" with the question statement. Similarly, if the mean response was greater than or equal to 3.25, but less than 3.5, it was

concluded that the respondents were "undecided, but tended to agree" with the question statement.

d. If the mean response was greater than or equal to 3.5, but less than 4.5, it was concluded that the respondents "agreed" with the question statement.

e. If the mean response was greater than or equal to 4.5, but less than or equal to 5, then it was concluded that the respondents "strongly agreed" with the question statement.

In order to determine if two treatment groups had significantly different opinions about a given question statement, it was necessary to perform a two sample t-test on the Likert scale data. This statistical test required two assumptions (17:287):

1. The standard deviations of both treatment group populations are equal.

2. Both populations are normal.

Assumption 1 was justified by the fact that the sample standard deviations differed by relatively small amounts. Furthermore, statisticians agree that if the sample standard deviations are "roughly the same order of magnitude, then one can be comfortable in using the test" (17:288). Assumption 2 was justified by the fact that all sample sizes were larger that 30, which allows use of the Central Limit Theorem (17:201). The Central Limit Theorem states that as the sample size increases, the distribution of sample means will approach a normal distribution (8:243).

Each of the questions was analyzed using the SAS (9) computer program shown in Appendix C. The SAS package was chosen for this test because of its availability on the AFIT computer system, and because it was capable of performing the t-tests without having to read the entire data set. In other words, the program allowed the means, standard deviations and sample sizes calculated by the VIP Professional program to be input directly.

The two sample t-tests considered two hypotheses (17:289):

H_o: The response means for the two treatment groups are equal.

H_a: The two response means are different.

The decision rule for the t-tests was (17:289):

if either $T \geq t$ or $T \leq -t$, then reject H_o.

The test statistic, T, was calculated using (17:289):

$$T = \frac{\bar{X} - \bar{Y}}{S_p\sqrt{(1/m + 1/n)}} \qquad (1)$$

where $\bar{X}$ was the response mean for one treatment group, $\bar{Y}$ was the response mean for the other treatment group, m and n were the treatment group sizes, and S_p was the pooled standard deviation. The value of S_p was calculated using the following equation (17:288):

$$S_p = \sqrt{(m-1/m + n - 2)S_m^2 + (n-1/m + n - 2)S_n^2} \qquad (2)$$

where S_n was the standard deviation for one treatment group

and S_m was the standard deviation for the other treatment group. The critical value of t was found by the computer using standard t distribution data, and the parameters m+n-2 and alpha/2 (the level of significance divided by two).

The values of T and t were compared for each test, and the decision rule was applied. If H_o was rejected, it was concluded that the two groups had a significant difference of opinion. If H_o was not rejected, it was concluded that the two groups had the same opinion.

Rank-ordering Questions. The rank-ordering questions were analyzed by computing the mean response to each item, and ranking the items based on the magnitude of the mean response. Additionally, the questions were rank-ordered based on the mean responses of the different treatment groups. The mode response for each item was also calculated.

Percentage Questions. Each percentage question was analyzed to determine if there was a significant difference between the mean respondent answer, and the actual C-1 measured area percentage dictated by readiness reporting regulations. The analysis was done using a Z-test program written with the 'S' (6) statistical package. The 'S' package was chosen because of its availability on the AFIT computer system, and because of its ability to perform the Z-tests without reading the entire data set (only the sample sizes, means and standard deviations were required). The Z-test was justified by the fact that the sample size was large enough ($n > 30$) to allow for the normal approximation (17:202).

The program code is shown in Appendix D. The Z-tests considered two hypotheses (17:242):

H_o: The response mean is equal to the value dictated by the readiness reporting regulations.

H_a: The response mean is not equal to the value dictated by the readiness reporting regulations.

The decision rule for the Z-tests was (17:242):

if either $Z \geq z$ or $Z \leq -z$, then reject H_o.

The test statistic, Z, was calculated using (17:242):

$$Z = (\bar{X} - mu) / \sigma // \overline{(n)} \qquad (3)$$

where $\bar{X}$ was the response mean, mu was the percentage dictated by the readiness reporting regulations, σ is the calculated standard deviation, and n is the sample size. The critical value of z was found by the computer using standard z distribution data, and the parameter alpha/2 (the level of significance divided by two). The values of Z and z were compared for each test, and the decision rule was applied. If H_o was rejected, it was concluded that the respondents believed the percentage necessary to earn a C-1 readiness level should be something other than the percentage dictated by the regulations. If H_o was not rejected, it was concluded that the respondents believed the percentage necessary to earn a C-1 readiness level was the same as the percentage dictated by the regulations.

Open-ended Question. The open-ended response question was analyzed using the following methodology (24:34):

1. The responses were reviewed to identify the general content of each response.

2. A list of general content categories was developed during the review process.

3. A frequency histogram was produced based on the number of responses included in each category.

Since the categorization process was quite subjective, the reliability of the results using this method may be questioned. However, since all groupings were made by the same individual, the results are assumed to be a valid means of representing the opinions and thoughts of the respondents.

Summary

This chapter described the methodology used to help answer the research question. The results of employing this methodology are documented in Chapter III.

III. Findings and Analysis

Overview

This chapter presents the findings and analysis of the data collected through the survey instrument for the analysis of the perceived accuracy of the Prime BEEF SORTS report. The data was analyzed using the methodology described in Chapter II, employing the VIP Professional, SAS, and 'S' computer programs previously described. The survey response data is presented first, followed by the survey findings which are presented according to question type, with the demographic questions being presented first, the Likert scale questions second, the rank-ordered questions third, the percentage questions fourth, and the open-ended question last. Finally, the findings are analyzed in terms of the original investigative question(s) to which they pertain.

Due to space constraints, the following abbreviations are used in the data tables: Base Civil Engineers (BCEs), Prime BEEF managers (PBMs), with deployment experience (With Dep. Exp.) and without deployment experience (Without Dep. Exp.).

Survey Response Data

Table 3.1 displays the participation results for the survey. All of the surveys returned within the six week time deadline were usable. The data from these surveys is provided in Appendix I. Two surveys were returned after the

six week deadline. Data from these surveys was not included in the analysis.

TABLE 3.1

Participation Results

	Number	Percentage
Surveys Distributed	158	---
Surveys Returned	113	71.5
PBM Surveys Returned	65	82.3
BCE Surveys Returned	48	60.8

Survey Findings

Demographic Data. These questions asked for some basic identifying information from the respondents.

Survey Question 11. Table 3.2 shows the SORTS report experience levels of the respondents. The majority of the respondents had between one and four years of experience with the SORTS report. A relative frequency histogram of the responses to this question can be found in Appendix E.

TABLE 3.2

SORTS Report Experience Level

Experience Level	Absolute Frequency	Relative Frequency (%)
No experience	0	0
less than 6 months	8	7.1
6 months but less than 1 year	24	21.2
1 year but less than 2 years	33	29.2
2 years but less than 4 years	28	24.8
4 years or more	20	17.7

Survey Question 12. Table 3.3 displays the job descriptions of the respondents. The higher Prime BEEF manager response rate may be due to the fact that Prime BEEF managers have less responsibility than BCEs, and therefore they have more time to complete a survey. A relative frequency histogram of the responses to this question is displayed in Appendix E.

TABLE 3.3

Job Descriptions

Job Description	Absolute Frequency	Relative Frequency (%)
BCEs	48	42.5
PBMs	65	57.5

Survey Question 13. Table 3.4 displays the military ranks of the respondents. All of the colonels and lieutenant colonels, and all but one of the majors, identified themselves as BCEs, while all of the NCOs, lieutenants and captains responded as Prime BEEF managers. A relative frequency histogram of the responses to this question can be found in Appendix E.

TABLE 3.4

Ranks

Rank	Absolute Frequency	Relative Frequency (%)
Colonel	22	19.5
Lt. Colonel	25	22.1
Major	2	1.8
Captain	12	10.6
1st Lt.	21	18.6
2nd Lt.	7	6.2
NCO	24	21.2

Survey Question 14. Table 3.5 displays the Major Air Force Commands to which the respondents belonged. A relative frequency histogram of the responses to this question is located in Appendix E.

TABLE 3.5

Major Commands

Command	Absolute Frequency	Relative Frequency (%)
Space Command	1	.9
AFLC	9	8.0
AFSC	5	4.4
ATC	12	10.6
MAC	23	20.3
SAC	33	29.2
TAC	28	24.8
Other	2	1.8

Survey Question 15. Table 3.6 shows the number of respondents with Prime BEEF deployment experience. Eight of the experienced respondents indicated that they had actual combat support experience in Vietnam.

TABLE 3.6

Deployment Experience

	Absolute Frequency	Relative Frequency (%)
Respondents with experience	39	34.5

Likert Scale Questions. The Likert scale questions asked the respondents to indicate their level of agreement or disagreement with the item's statement. One respondent left question four blank; therefore, this question had only 112 respondents, rather than 113. In addition to the results shown in Tables 3.7 thru 3.11, a graphic representation of the results to each of the Likert scale questions is shown in Appendix F.

Survey Question 1. Table 3.7 indicates the respondents' opinions on the overall accuracy of the Prime BEEF SORTS reports.

TABLE 3.7

Overall Accuracy

Q1. I believe that the Prime BEEF SORTS reports provide an accurate assessment of Prime BEEF readiness to accomplish contingency and combat support missions.

Respondents	Mean	Std. Dev.	Interpretation
Overall	3.19	1.09	Undecided
BCEs	3.29	.96	Tended to Agree
PBMs	3.11	1.18	Undecided
With Dep. Exp.	3.15	1.12	Undecided
Without Dep. Exp.	3.20	1.08	Undecided

Survey Question 2. Table 3.8 show the respondents' opinions regarding the ability to rate a non-proficient, unknowledgeable Prime BEEF team member as "fully trained."

TABLE 3.8

Rating Ability

Q2. The current SORTS rating criteria allow a Prime BEEF team member to be reported as "fully trained", even though that member's proficiency/knowledge level is not sufficient to successfully accomplish his/her wartime mission.

Respondents	Mean	Std. Dev.	Interpretation
Overall	3.38	1.14	Tended to Agree
BCEs	3.06	1.01	Undecided
PBMs	3.62	1.17	Agree
With Dep. Exp.	3.21	1.18	Undecided
Without Dep. Exp.	3.47	1.11	Tended to Agree

Survey Question 3. Table 3.9 show the respondents' opinions regarding Prime BEEF training proficiency/knowledge tests.

TABLE 3.9

Proficiency/Knowledge Tests

Q3. The accuracy and validity of the training C-level could be increased if, before they could be reported as "trained" on the SORTS report, each Prime BEEF team member was required to display minimum proficiency/knowledge levels for each type of Prime BEEF training.

Respondents	Mean	Std. Dev.	Interpretation
Overall	3.57	1.04	Agree
BCEs	3.52	1.06	Agree
PBMs	3.60	1.02	Agree
With Dep. Exp.	3.46	.90	Agree
Without Dep. Exp.	3.62	1.10	Agree

Survey Question 4. Table 3.10 displays the respondents' opinions about the clarity of the SORTS rating criteria.

TABLE 3.10

Rating Criteria

Q4. The SORTS report rating criteria are clear, unambiguous, and easily interpreted.

Respondents	Mean	Std. Dev.	Interpretation
Overall	2.93	1.11	Undecided
BCEs	2.96	.97	Undecided
PBMs	2.91	1.20	Undecided
With Dep. Exp.	2.92	1.10	Undecided
Without Dep. Exp.	2.93	1.11	Undecided

Survey Question 5. Table 3.11 shows the respondents' opinions regarding the existence of other measurable factors that contribute to readiness.

TABLE 3.11

Other Measurable Factors

Q5. Aside from training, equipment, and personnel, there are other measurable factors that have a major effect on a unit's level of readiness.

Respondents	Mean	Std. Dev.	Interpretation
Overall	3.35	1.11	Tended to Agree
BCEs	3.40	1.04	Tended to Agree
PBMs	3.32	1.16	Tended to Agree
With Dep. Exp.	3.21	1.18	Undecided
Without Dep. Exp.	3.43	1.07	Tended to Agree

Rank-Ordered Questions. These questions asked the respondents to apply a rank to each item in a list of items. Some of the respondents gave the same rank to two items in a single list (a tie). In this situation, the two ranks were

added, and each item was given a rank equal to one-half of the sum of the ranks.

Survey Question 9. Table 3.12 displays how the respondents ranked the resource area C-levels with respect to accuracy.

Survey Question 10. Table 3.13 displays the respondents' ranking of the methods that could be used to estimate Prime BEEF combat readiness.

TABLE 3.12

C-level Accuracy

Q9. Please rank-order the following reported resource area C-levels to reflect which one you think is the most accurate, second most accurate and least accurate (most accurate = 1, second = 2, least = 3).

Resource Area C-level	Mean Rank	Mean	Mode
Overall			
Equip. and Supplies	2	1.76	2
Personnel	1	1.55	1
Training	3	2.71	3
BCEs			
Equip. and Supplies	2	1.82	2
Personnel	1	1.46	1
Training	3	2.72	3
PBMs			
Equip. and Supplies	2	1.72	1
Personnel	1	1.62	1
Training	3	2.70	3
With Dep. Exp.			
Equip. and Supplies	2	1.87	2
Personnel	1	1.64	1
Training	3	2.54	3
Without Dep. Exp.			
Equip. and Supplies	2	1.70	2
Personnel	1	1.50	1
Training	3	2.80	3

TABLE 3.13

Readiness Estimation Methods

Q10. There are several methods that could be used to estimate the combat readiness of a Prime BEEF team. Please rank order the following possible methods with respect to their ability to provide an accurate estimation of a Prime BEEF team's level of readiness (1 = best ability through 4 = worst ability).

	Mean	Mean Rank	Mode
Overall			
MCIs	2.61	3	2,3 (tie)
SORTS	3.25	4	4
Exercise Results	1.97	1	1
Eglin, Field 4	2.17	2	1
BCEs			
MCIs	2.70	3	3
SORTS	3.23	4	4
Exercise Results	1.89	1	1
Eglin, Field 4	2.21	2	2
PBMs			
MCIs	2.55	3	2
SORTS	3.26	4	4
Exercise Results	2.04	1	1
Eglin, Field 4	2.14	2	1
With Dep. Exp.			
MCIs	2.41	2 (tie)	2
SORTS	3.05	3	3
Exercise Results	2.10	1	1
Eglin, Field 4	2.41	2 (tie)	1
Without Dep. Exp.			
MCIs	2.72	3	3
SORTS	3.35	4	4
Exercise Results	1.91	1	1
Eglin, Field 4	2.04	2	1

Percentage Questions. These questions asked the respondents to give their own C-1 percentage requirement for each of the three measured resource areas. Several respondents answered the percentage questions by giving a range of

values, rather than one specific value. In these cases, the midpoint of the range was used in the data analysis. Some of the respondents answered the percentage questions with a values that exceeded 100 percent. This indicated that these respondents believe that the current requirement is too low (see Appendix B, instructions for questions 6 thru 8).

Survey Question 6. Table 3.14 shows the respondent's opinions regarding the C-1 training percentage requirement.

TABLE 3.14

C-1 Training Percentage

Q6. What minimum percentage of required training must be completed for a Prime BEEF team to be able to successfully undertake the full wartime mission for which it was designed?

	Resp.	Mean	Std. Dev.
Overall	111	97.97	53.78
BCEs	47	89.85	27.13
PBMs	64	103.93	66.27
With Dep. Exp.	39	103.46	75.47
Without Dep. Exp.	72	94.99	36.72

Survey Question 7. Table 3.15 shows the respondent's opinions regarding the C-1 personnel percentage requirement.

TABLE 3.15

C-1 Personnel Percentage

Q7. What minimum percentage of required personnel is necessary for a Prime BEEF team to be able to successfully undertake the full wartime mission for which it was designed?

	Resp.	Mean	Std. Dev.
Overall	112	90.89	12.64
BCEs	47	88.10	13.85
PBMs	65	92.91	11.27
With Dep. Exp.	39	91.00	6.63
Without Dep. Exp.	73	90.83	14.89

Survey Question 8. Table 3.16 shows the respondent's opinions regarding the C-1 equipment and supplies percentage requirement.

TABLE 3.16

C-1 Equipment and Supplies Percentage

Q8. What minimum percentage of required equipment and supplies is necessary for a Prime BEEF team to be able to successfully undertake the full wartime mission for which it was designed?

	Resp.	Mean	Std. Dev.
Overall	111	99.31	28.86
BCEs	46	93.50	19.35
PBMs	65	103.42	33.41
With Dep. Exp.	38	104.75	33.77
Without Dep. Exp.	73	96.48	25.48

Open Ended Question. The final question of the survey instrument asked the respondents to express their opinions on what could be done to improve the way in which the

readiness of Prime BEEF teams is reported. As described previously, the answers were grouped into different topic categories based on their content. In addition to the results shown in Table 3.17, a relative frequency histogram of the answers to the open ended question is shown in Appendix G, and selected responses to survey question 16 are presented in Appendix H.

Survey Question 16. Table 3.17 shows the topic breakdown of the various answers to question 16. Eighty-nine of the respondents answered question 16. Some of the answers contained more than one topic. In this case, each answer topic was recorded as a separate response. As a result, there were a total of 101 separate responses to question 16. Twenty-four of the respondents did not answer question 16.

TABLE 3.17

TOPIC BREAKDOWN

Q16. What could/should the Air Force and/or major commands do to enhance the accuracy and validity with which the readiness of Prime BEEF teams is reported?

Topic	Absolute Frequency	Relative Freq.(%)
1. Spend more time on training.	21	16.8
2. Incorporate a demonstrated ability factor into the SORTS C-level.	16	12.8
3. Do more deployment-oriented, hands-on training.	14	11.2
4. SORTS shouldn't be changed since it is the most practical and effective way of estimating readiness.	13	10.4
5. Eliminate the evaluative nature of the SORTS reports.	5	4.0
6. Emphasize the use of the Commander's assessment option.	5	4.0
7. Assign more personnel to help manage the Prime BEEF program.	4	3.2
8. Validate SORTS via no-notice inspections and staff assistance visits.	3	2.4
9. Do not count unfilled positions as untrained.	3	2.4
10. Standardize reporting procedures across the major commands.	3	2.4
11. Create more/better reason codes.	2	1.6
12. Miscellaneous.	12	9.6
13. No comment.	24	19.2
TOTAL	125	100.0

Analysis in Terms of the Investigative Questions

Investigative Question 1. Do CONUS BCE's and Prime BEEF managers believe that the SORTS reports provide an accurate assessment of Prime BEEF readiness to accomplish contingency and combat support missions?

This investigative question was analyzed using survey question 1. The results of the question 1 analysis are displayed in Table 3.7.

Investigative Question 2. Do CONUS BCE's and Prime BEEF managers believe that, in addition to the training, equipment and readiness areas, other measurable factors should be considered when estimating the readiness of a Prime BEEF team?

This investigative question was analyzed using survey question 5. The results of the question 5 analysis are shown in Table 3.11.

Investigative Question 3. Do the BCE's and Prime BEEF managers believe that the SORTS rating criteria are clear, unambiguous, and easily interpreted?

This investigative question was analyzed using survey question 4. The results of the question 4 analysis are displayed in Table 3.10.

Investigative Question 4. How do the CONUS BCE's and Prime BEEF managers rank the three resource areas with respect to accuracy?

This investigative question was analyzed using survey question 9. The results of the question 9 analysis are shown in Table 3.12.

Investigative Question 5. Do CONUS BCE's and Prime BEEF managers believe that the SORTS report is the best way to estimate a Prime BEEF team's readiness?

This investigative question was analyzed using survey question 10. The results of the question 10 analysis are displayed in Table 3.13.

Investigative Question 6. Do CONUS BCE's and Prime BEEF managers with significant Prime BEEF deployment experience have a different perception of the SORTS report than those with limited experience?

This investigative question was analyzed using survey questions 1, 2, 3, 4, 5 and 15. Question 15 was used to identify the experienced individuals, while questions 1 through 5 were used to measure the respondents' perceptions. The results of the T-tests performed on the data from each of the five Likert scale questions are shown in Table 3.18.

Investigative Question 7. Do the CONUS BCE's and Prime BEEF managers perceive a problem with the accuracy and validity of the training C-level based on the fact that Prime BEEF training is not standardized throughout the Air Force, and proficiency/knowledge levels have not been set?

This investigative question was analyzed using survey questions 2 and 3. The results of the analyses of these questions are shown in Tables 3.8 and 3.9.

TABLE 3.18

Experienced/Non-experienced T-test Results (alpha = .05)

Question 1	Mean	Std. Dev.	n	+t	-t	T
With Dep. Exp.	3.15	1.12	39	1.98	-1.98	-.23
Without Dep. Exp.	3.20	1.08	74			

Since -t < T < +t , accept Ho.
Conclusion: The two groups have the same opinion.

Question 2	Mean	Std. Dev.	n	+t	-t	T
With Dep. Exp.	3.21	1.18	39	1.98	-1.98	-1.16
Without Dep. Exp.	3.47	1.11	74			

Since -t < T < +t , accept Ho.
Conclusion: The two groups have the same opinion.

Question 3	Mean	Std. Dev.	n	+t	-t	T
With Dep. Exp.	3.46	.90	39	1.98	-1.98	.44
Without Dep. Exp.	3.47	1.11	73			

Since -t < T < +t , accept Ho.
Conclusion: The two groups have the same opinion.

Question 4	Mean	Std. Dev.	n	+t	-t	T
With Dep. Exp.	2.92	1.10	39	1.98	-1.98	-.04
Without Dep. Exp.	3.47	1.11	74			

Since -t < T < +t , accept Ho.
Conclusion: The two groups have the same opinion.

Question 5	Mean	Std. Dev.	n	+t	-t	T
With Dep. Exp.	3.21	1.18	39	1.98	-1.98	.32
Without Dep. Exp.	3.43	1.07	74			

Since -t < T < +t , accept Ho.
Conclusion: The two groups have the same opinion.

Investigative Question 8. What minimum percentage of required training do the CONUS BCE's and Prime BEEF managers believe is necessary for a Prime BEEF team to be able to successfully undertake the full wartime mission for which it was designed?

This investigative question was analyzed using survey question 6. The results of the question 6 analysis are shown in Table 3.14.

Investigative Question 9. What minimum percentage of required personnel do CONUS BCE's and Prime BEEF managers believe is necessary for a Prime BEEF team to be able to successfully undertake the full wartime mission for which it was designed?

This investigative question was analyzed using survey question 7. The results of the question 7 analysis are shown in Table 3.15.

Investigative Question 10. What minimum percentage of required equipment and supplies do CONUS BCE's and Prime BEEF managers believe is necessary for a Prime BEEF team to be able to successfully undertake the full wartime mission for which it was designed?

This investigative question was analyzed using survey question 8. The results of the question 6 analysis are shown in Table 3.16.

Investigative Question 11. Does the CONUS BCE's perception of the SORTS report differ from that of the CONUS Prime BEEF manager?

This investigative question was analyzed using survey questions 1, 2, 3, 4, 5 and 12. Question 12 was used to identify the respondents as BCE's or Prime BEEF managers, while questions 1 through 5 were used to measure the respondents' perceptions. The results of the T-tests performed on the data from each of the five Likert scale questions are shown in Table 3.19.

TABLE 3.19

BCE/PBM T-test Results (alpha = .05)

Question 1	Mean	Std. Dev.	n	+t	-t	T
BCEs	3.29	.96	48	1.98	-1.98	.86
PBMs	3.11	1.18	65			

Since -t < T < +t , accept Ho.
Conclusion: The two groups have the same opinion.

Question 2	Mean	Std. Dev.	n	+t	-t	T
BCEs	3.06	1.01	48	1.98	-1.98	-2.66
PBMs	3.62	1.17	65			

Since T < -t, reject Ho.
Conclusion: The two groups have different opinions.

Question 3	Mean	Std. Dev.	n	+t	-t	T
BCEs	3.52	1.06	48	1.98	-1.98	-.40
PBMs	3.60	1.02	65			

Since -t < T < +t , accept Ho.
Conclusion: The two groups have the same opinion.

Question 4	Mean	Std. Dev.	n	+t	-t	T
BCEs	2.96	.97	47	1.98	-1.98	.24
PBMs	2.91	1.20	65			

Since -t < T < +t , accept Ho.
Conclusion: The two groups have the same opinion.

Question 5	Mean	Std. Dev.	n	+t	-t	T
BCEs	3.40	1.04	48	1.98	-1.98	.38
PBMs	3.32	1.16	65			

Since -t < T < +t , accept Ho.
Conclusion: The two groups have the same opinion.

Investigative Question 12. Do the C-1 percentages suggested by investigative questions 8, 9 and 10 differ from those mandated by AFR 55-15, Unit Combat Readiness Reporting?

This investigative question was analyzed using survey questions 6, 7 and 8. The results of this analysis are displayed in Table 3.20.

TABLE 3.20

Z-test Results (alpha = .05)

Question 6

Overall Mean = 97.97 Hypothesized Mean = 85

Std. Dev. = 53.78 Sample Size = 111

Z = 2.54 +z = 1.96 -z = -1.96

Since Z > +z, reject Ho.

Conclusion: The response mean is significantly greater than the value dictated by the readiness reporting regulations.

Question 7

Overall Mean = 90.89 Hypothesized Mean = 85

Std. Dev. = 12.64 Sample Size = 112

Z = 4.93 +z = 1.96 -z = -1.96

Since Z > +z, reject Ho.

Conclusion: The response mean is significantly greater than the value dictated by the readiness reporting regulations.

Question 8

Overall Mean = 99.31 Hypothesized Mean = 90

Std. Dev. = 28.86 Sample Size = 111

Z = 3.40 +z = 1.96 -z = -1.96

Since Z > +z, reject Ho.

Conclusion: The response mean is significantly greater than the value dictated by the readiness reporting regulations.

Summary

This chapter presented the results of employing the methodology detailed in Chapter II. The results included the survey response data, survey findings, and the data analysis in terms of the original investigative questions.

IV. Conclusions and Recommendations

Overview

This chapter provides a summary of the conclusions that can be drawn from the analysis documented in Chapter III. Additionally, suggestions for the enhancement of the accuracy of the SORTS report are made, based on results of this research effort. Finally, recommendations for further study in this area are presented.

Conclusions

The original research question sought to determine if the Prime BEEF SORTS report provided an accurate assessment of Prime BEEF readiness. To assist in answering this question, 12 investigative questions were formulated. Although not all of these questions dealt directly with the accuracy of the SORTS report, it was hoped that the answers to these questions would promote a better understanding of the overall SORTS report, thereby aiding in the formulation of conclusions about its accuracy. The investigative questions functioned as the foundation upon which the survey instrument was built. It was hoped that by analyzing the results of the survey, each of the investigative questions would be answered, and ultimately, the original research question would be satisfied to the highest degree possible.

The following conclusions are presented as related to the original investigative question to which they pertain.

Additionally, the conclusions from each of the nine investigative questions that dealt directly with the accuracy of the SORTS report are used to support a negative, positive or neutral answer to the original research question. Finally the original research question is answered based on the answers to the 12 investigative questions.

Investigative Question 1. Do CONUS BCE's and Prime BEEF managers believe that the SORTS reports provide an accurate assessment of Prime BEEF readiness to accomplish contingency and combat support missions?

Collectively, the BCEs and Prime BEEF managers are undecided about whether the SORTS reports provide an accurate assessment. As a group, the BCEs are undecided, but tend to agree that the SORTS report provides an accurate assessment, while the Prime BEEF managers are undecided.

Although the Likert scale criteria indicated that the BCEs and Prime BEEF managers differ in their opinions, it is important to note that a statistical analysis proved that the difference of opinion suggested by the Likert scale criteria was not significant.

Overall, this investigative question conclusion suggests a neutral answer to the original research question. In other words, this conclusion neither supports or opposes the statement that the SORTS report provides an accurate assessment of Prime BEEF readiness.

Investigative Question 2. Do CONUS BCE's and Prime BEEF managers believe that, in addition to the training, equipment and readiness areas, other measurable factors should be considered when estimating the readiness of a Prime BEEF team?

Overall, and as individual treatment groups, the BCEs and Prime BEEF managers are undecided, but tend to agree that there are other measurable factors that contribute to a unit's level of readiness. Although they do tend to agree that there are "other factors", it is interesting to note that some of the respondents indicated that adding these factors to the report would make the report too difficult to complete on a monthly basis (survey question 16, topic 4), while others advocated the incorporation of these factors (survey question 16, topic 2).

The fact that the BCEs and Prime BEEF managers tend to agree that there are "other factors" that should be considered suggests that the current SORTS report does not give an accurate assessment of Prime BEEF readiness, because it does not consider all of the factors that affect readiness. Therefore, this research conclusion supports a negative answer to the research question.

Investigative Question 3. Do the BCE's and Prime BEEF managers believe that the SORTS rating criteria are clear, unambiguous, and easily interpreted?

The results indicate that the BCEs and Prime BEEF managers, both collectively and as individual treatment

groups, are undecided about the clarity, ambiguity, and ease of interpretation of the SORTS rating criteria. As a result of this indecisiveness, this investigative question conclusion suggests a neutral answer to the research question.

Investigative Question 4. How do the CONUS BCE's and Prime BEEF managers rank the three resource areas with respect to accuracy?

When considered collectively, or as individual treatment groups, the BCEs and Prime BEEF managers rank the personnel resource area as most accurate, the equipment and supplies resource area as second most accurate, and the training resource area as least accurate. The inaccuracy of the training resource area is also suggested by the fact that there were more training related responses to question 16 (topics 1 and 3) than any other type of response.

Although this investigative question cannot be related directly to the research question, it does provide insight into the source of SORTS report inaccuracies. Specifically, if it is concluded that the SORTS report is inaccurate, the training resource area will be most suspect.

Investigative Question 5. Do CONUS BCE's and Prime BEEF managers believe that the SORTS report is the best way to estimate a Prime BEEF team's readiness?

The BCEs and Prime BEEF managers, when considered collectively and as individual treatment groups, do not consider the SORTS report to be the best way of estimating

the readiness of a Prime BEEF team. On the contrary, the Prime BEEF managers and BCEs consider exercise results, Field 4 training performance and MCI ratings as more accurate methods of determining Prime BEEF team readiness. Since the SORTS report fared so poorly as a means of estimating readiness, this research conclusion supports a negative answer to the research question.

Investigative Question 6. Do CONUS BCE's and Prime BEEF managers with significant Prime BEEF deployment experience have a different perception of the SORTS report than those with limited experience?

The BCEs and Prime BEEF managers with significant deployment experience do not have a different perception of the SORTS report than those with limited experience. Experienced personnel seem to advocate that Prime BEEF teams be required to have more training, and more equipment and supplies, while the inexperienced personnel do not (survey questions 6 and 8). This may stem from the fact that the experienced personnel may have witnessed the negative results of a lack of training or equipment and supplies while the inexperienced personnel have had no such experiences.

Although this investigative question cannot be related directly to the research question, it does show that the opinions and beliefs expressed in the surveys were not affected by the degree of actual Prime BEEF experience the respondents may have had, thereby eliminating one of the

suspected confounding variables and adding validity to the the study, and more credibility to the respondents' answers.

Investigative Question 7. Do the CONUS BCE's and Prime BEEF managers perceive a problem with the accuracy and validity of the training C-level based on the fact that Prime BEEF training is not standardized throughout the Air Force, and proficiency/knowledge levels have not been set?

Overall, the Prime BEEF managers and BCEs perceive a problem with the accuracy and validity of the training C-level based on the lack of standardization and minimum proficiency/knowledge levels. This conclusion is based on the following facts:

1. The BCEs and Prime BEEF managers are undecided, but tend to agree that Prime BEEF team members may be reported as "fully trained" without possessing an adequate proficiency/knowledge level.

2. The BCEs and Prime BEEF managers agree that the accuracy and validity of the training C-level could be increased if minimum proficiency/knowledge levels were required in order to report a Prime BEEF team member as "fully trained."

The research conclusion stated above supports a negative response to the research question since it suggests that the SORTS report is inaccurate due to problems with Prime BEEF training.

A significant difference of opinion exists between the Prime BEEF managers and the BCEs concerning the ability to

report a Prime BEEF team member as "fully trained", even though that member's proficiency/knowledge level is not sufficient to successfully accomplish his wartime mission. While the BCEs are undecided about the existence of such an ability, the Prime BEEF managers agree that it is possible to report a non-proficient or unknowledgeable Prime BEEF team member as "fully trained." This difference of opinion may stem from the fact that the Prime BEEF managers are tasked with the monthly preparation of the SORTS report while the BCEs are tasked with approving the SORTS report. Since the Prime BEEF managers are more intimately involved with the SORTS report, they are in a better position to perceive that the system does allow such erroneous reporting. The BCEs however, given their option of raising or lowering C-levels based on their subjective assessment, may hypothesize that such erroneous reporting is not likely since they have the ability to correct it.

Investigative Question 8. What minimum percentage of required training do the CONUS BCE's and Prime BEEF managers believe is necessary for a Prime BEEF team to be able to successfully undertake the full wartime mission for which it was designed?

Overall, the BCEs and Prime BEEF managers believe that a Prime BEEF team must complete at least 97.97 percent of the required training to successfully undertake the full wartime mission for which it was designed. In other words, the BCEs and Prime BEEF managers believe that a Prime BEEF

team must have completed at least 97.97 percent of its required training to warrant a C-1 readiness level in the training resource area.

Considered as individual treatment groups, the BCEs believe that at least 89.95 percent of the training should be completed for a C-1 level, while the Prime BEEF managers believe that at least 103.93 percent should be completed. This indicates that the Prime BEEF managers believe that additional training requirements should be created.

Since the SORTS report criteria requires completion of only 85 percent of the training, this investigative question conclusion supports a negative response to the research question.

Investigative Question 9. What minimum percentage of required personnel do CONUS BCE's and Prime BEEF managers believe is necessary for a Prime BEEF team to be able to successfully undertake the full wartime mission for which it was designed?

Considered collectively, the BCEs and Prime BEEF managers believe that a Prime BEEF team must possess at least 90.89 percent of the required personnel to successfully undertake the full wartime mission for which it was designed. In other words, the BCEs and Prime BEEF managers believe that a Prime BEEF team must have at least 90.89 percent of its required personnel to warrant a C-1 readiness level in the personnel resource area.

Considered as individual treatment groups, the BCEs believe that 88.10 percent of the personnel should be available for a C-1 level, while the Prime BEEF managers believe that 92.91 percent should be required.

Since the SORTS report criteria require only 85 percent, this investigative question conclusion supports a negative response to the research question.

Investigative Question 10. What minimum percentage of required equipment and supplies do CONUS BCE's and Prime BEEF managers believe is necessary for a Prime BEEF team to be able to successfully undertake the full wartime mission for which it was designed?

Overall, the BCEs and Prime BEEF managers believe that a Prime BEEF team must possess at least 99.31 percent of the required equipment and supplies to successfully undertake the full wartime mission for which it was designed. In other words, the BCEs and Prime BEEF managers believe that a Prime BEEF team must have at least 99.31 percent of its equipment and supplies to warrant a C-1 readiness level in the equipment and supplies resource area.

Considered as individual treatment groups, the BCEs believe that 93.50 percent of the equipment and supplies should be on-hand for a C-1 level, while the Prime BEEF managers believe that 103.42 percent should be required. This high (above 100) percentage indicates that the Prime BEEF managers believe that Prime BEEF teams should be required to have more equipment and supplies.

Since the SORTS report criteria require only 90 percent of the equipment and supplies be on hand to report a C-1 readiness level, this investigative question conclusion supports a negative response to the research question.

Investigative Question 11. Does the CONUS BCE's perception of the SORTS report differ from that of the CONUS Prime BEEF manager?

In general, the BCEs perception of the SORTS report does not differ from that of the Prime BEEF manager. They do seem to differ slightly on the issue of whether it is possible to report a training-deficient Prime BEEF team member as "fully trained." Also, the Prime BEEF managers seem to believe that the C-1 level requirements should be higher than the BCEs believe they should be.

Although this investigative question cannot be related directly to the research question, its conclusion does indicate that the opinions of the BCEs and Prime BEEF managers are generally the same. This consensus of opinion lends additional credence to the research conclusions.

Investigative Question 12. Do the C-1 percentages suggested by investigative questions 8, 9 and 10 differ from those mandated by AFR 55-15, Unit Combat Readiness Reporting?

In all three cases (training, personnel and equipment and supplies), the C-1 percentages suggested by the answers to investigative questions 8, 9 and 10 are significantly greater than those mandated by AFR 55-15, Unit Combat

Readiness Reporting. This research conclusion supports a negative response to the research question by suggesting that the current SORTS rating criteria are too lenient.

The Research Question. Does the Prime BEEF SORTS report provide an accurate assessment of Prime BEEF readiness to accomplish contingency and combat support missions?

Of the the nine investigative question conclusions that related directly to the research question, seven supported a negative response, and the other two supported a neutral response. Additionally, two of the three investigative questions that did not relate directly to the research question produced conclusions that tended to add credibility to the respondents' opinions, while the third suggested that the main cause of any SORTS report inaccuracies is the training C-level.

Based on these facts, this study concludes that the Prime BEEF SORTS report does not provide an accurate assessment of Prime BEEF readiness. Furthermore, this study concludes that inadequacies in the Prime BEEF training program are the main source of the SORTS report inaccuracies.

Recommendations

SORTS Enhancement. The results of this study indicate that the SORTS report does not provide an accurate assessment of Prime BEEF readiness. In an effort to resolve this problem, the investigative question conclusions and the

open-ended question responses were used to formulate the following recommendations for the enhancement of the accuracy of the SORTS report.

1. Before reporting an individual as "trained" in a type of Prime BEEF training, each Prime BEEF team member should be required to display a minimum proficiency/knowledge level in the training subject.

2. The concept of incorporating "other measurable factors" into the SORTS report should be investigated and, if practical, implemented.

3. The C-level percentage requirements should be elevated, or the amount of required training, equipment and supplies and personnel should be increased.

4. In conjunction with any increase in the amount of Prime BEEF training required, Prime BEEF leaders at the Air Force and MAJCOM levels should ensure that the training being given is deployment oriented, hands-on training, so that reported training is effective training.

5. Air Force leaders should continue their efforts in trying to eliminate the evaluative nature of the SORTS report. In other words, Air Force leaders should continue their efforts in trying to communicate the idea that a low, accurate C-level does not necessarily reflect poorly on the unit commander and his staff, while a high, inaccurate C-level does.

Further Study. This research effort has only addressed a small portion the Prime BEEF program. In hopes that future research will be done in this area, the following potential research questions were formulated based on the investigative question conclusions, and the open-ended question responses.

1. What level of proficiency/knowledge should Prime BEEF team members be required demonstrate before they are reported as "trained" in a Prime BEEF training subject?

2. What "other measurable factors" that effect Prime BEEF readiness should be included in the Prime BEEF SORTS report?

3. By what amount should each of the C-level percentage requirements should be increased?

4. What effect does the evaluative nature of the SORTS report have on its ability to accurately assess a Prime BEEF teams level of readiness?

5. How will the of the Prime BEEF teams effect the perceived accuracy of the Prime BEEF SORTS report.

Summary

This chapter described the conclusions that were drawn from the data analysis. Additionally, it presented several recommendations for enhancement of the accuracy of the SORTS report and concluded with suggestions for further study.

Appendix A: Bases Surveyed

Air Force Academy, CO
Altus AFB, OK
Andrews AFB, DC
Barksdale AFB, LA
Beale AFB, CA
Bergstrom AFB, TX
Blythville AFB, AR
Brooks AFB, TX
Cannon AFB, NM
Carswell AFB, TX
Castle AFB, CA
Chanute AFB, IL
Charleston AFB, SC
Columbus AFB, MS
Davis-Monthan AFB, AZ
Dover AFB, DE
Dyess AFB, TX
Edwards AFB, CA
Eglin AFB, FL
Ellsworth AFB, SD
England AFB, LA
F.E. Warren AFB, WY
Fairchild AFB, WA
George AFB, CA
Goodfellow AFB, TX
Grand Forks AFB, ND
Griffis AFB, NY
Grissom AFB, IN
Hanscom AFB, MA
Hill AFB, UT
Holloman AFB, NM
Homestead AFB, FL
Hurlburt Field, FL
K.I. Sawyer AFB, MI
Keesler AFB, MS
Kirtland AFB, NM
Lackland AFB, TX
Langley AFB, VA
Laughlin AFB, TX
Little Rock AFB, AR
Loring AFB, ME
Lowry AFB, [illegible]
Luke AFB, AZ
MacDill AFB, FL
Malmstrom AFB, MT
March AFB, CA
Marcher AFB, CA
Maxwell AFB, AL
McChord AFB, WA
McClellan AFB, CA
McConnel AFB, KS
McGuire AFB, NJ
Minot AFB, ND
Moody AFB, GA
Mt. Home AFB, ID
Myrtle Beach AFB, SC
Nellis AFB, NV
Norton AFB, CA
Offutt AFB, NE
Patrick AFB, FL
Pease AFB, NH
Peterson AFB, CO
Plattsburgh AFB, NY
Pope AFB, NC
Randolph AFB, TX
Reese AFB, TX
Robins AFB, GA
Scott AFB, IL
Seymour-Johnson AFB, NC
Shaw AFB, SC
Sheppard AFB, TX
Tinker AFB, OK
Travis AFB, CA
Tyndall AFB, FL
Vandenberg AFB, CA
Whiteman AFB, MO
Williams AFB, AZ
Wright-Patterson AFB, OH
Wurtsmith AFB, MI

Appendix B: Survey Instrument

DEPARTMENT OF THE AIR FORCE
AIR UNIVERSITY
AIR FORCE INSTITUTE OF TECHNOLOGY
WRIGHT-PATTERSON AIR FORCE BASE OH 45433-6583

1 MAR 1987

REPLY TO ATTN OF: LSM (Major Rumsey, AV 785-5023)

SUBJECT: Research Questionnaire (USAF Survey Control No. 87-26, expires 1 July 87)

TO: Base Civil Engineer

1. You have been selected to participate in an Air Force research project which is important to Air Force civil engineers. The responses you give to the attached survey questions will be used as the primary data source for determining how Base Civil Engineers and Prime BEEF officers perceive the accuracy of the Prime BEEF SORTS report (formerly UNITREP). Since you are a key player in the preparation and/or approval of the report, your perceptions of how well the SORTS report provides an accurate assessment of Prime BEEF readiness are extremely valuable.

2. Please take about 15 minutes to provide this important information. Please answer each question as accurately and truthfully as possible. All responses will be held confidential, and no attempt will be made to match any specific individual with specific survey responses. Of course, your participation is strictly voluntary.

3. Please return your completed survey form (through distribution) in the envelope provided within one week of receipt. Any questions concerning this questionnaire should be directed to Captain Tom Schluckebier, AFIT/LSG, AUTOVON 785-6569. Your help in this important project is greatly appreciated.

HAL A. RUMSEY, P.E., Maj, USAF
Director
Graduate Engineering Management Program
School of Systems & Logistics

3 Atch
1. Instructions
2. Questionnaire
3. Envelope

INSTRUCTION/DEFINITION SHEET

1. All instructions for completing this survey appear in *italics* on the following pages. Please mark your answers clearly and legibly.

2. Please use the following definitions when completing this survey:

   a. SORTS (Status of Resources and Training System) REPORT - Formerly known as UNITREP (Unit Status and Identity Report), this report is completed at least monthly by the Prime BEEF manager, and approved by the Base Civil Engineer. The goal of the SORTS report is to provide a timely and accurate assessment of a unit's readiness to accomplish its wartime mission.

   b. Readiness - The ability of a Prime BEEF team to successfully accomplish its wartime mission (includes ability to deploy and employ without unacceptable delays).

   c. Required Training - All Prime BEEF training that a Prime BEEF team must complete according to AFR 93-3, AF CE Prime BEEF Program, 30 November 1984. This training includes orientation, sanitation, EOR, expedient methods, security, vehicle operation, chemical warfare, weapons, RRR and field training for most Prime BEEF teams.

   d. Required Personnel - Individuals holding the AFSC's specified in AFR 93-3 that are needed to comprise a specific Prime BEEF team.

   e. Required Equipment - Those pieces of equipment, specified in AFR 93-3, that are supposed to be deployed with a specific Prime BEEF team.

SURVEY INSTRUMENT FOR THE ANALYSIS
OF THE PERCEIVED ACCURACY
OF THE PRIME BEEF SORTS REPORT

Please indicate your level of agreement or disagreement with the following statements. Indicate your answer by checking the response you choose. It is very important that your answer be based on your professional opinion, not necessarily what the answer "ought" to be.

1. I believe that the Prime BEEF SORTS reports provide an accurate assessment of Prime BEEF readiness to accomplish contingency and combat support missions.

___Strongly Agree ___Agree ___Neutral ___Disagree ___Strongly Disagree

2. The current SORTS rating criteria allow a Prime BEEF member to be reported as "fully trained", even though that member's proficiency/knowledge level is not sufficient to successfully accomplish his/her wartime mission.

___Strongly Agree ___Agree ___Neutral ___Disagree ___Strongly Disagree

3. The accuracy and validity of the training C-level could be increased if, before they could be reported as "trained" on the SORTS report, each Prime BEEF team member was required to display minimum proficiency/ knowledge levels for each type of Prime BEEF training.

___Strongly Agree ___Agree ___Neutral ___Disagree ___Strongly Disagree

4. The SORTS report rating criteria are clear, unambiguous, and easily interpreted.

___Strongly Agree ___Agree ___Neutral ___Disagree ___Strongly Disagree

5. Aside from training, equipment, and personnel, there are other measurable factors that have a major effect on a unit's level of readiness.

___Strongly Agree ___Agree ___Neutral ___Disagree ___Strongly Disagree

Please answer the following questions by entering your answer in the space provided. Again, it is important that you answer based on your professional opinion - not based on the applicable regulations and Air Force guidance. Answers greater than 100% will show that you believe that the current requirement is too low.

6. What minimum percentage of required training must be completed for a Prime BEEF team to be able to successfully undertake the full wartime mission for which it was designed?

_____%

7. What minimum percentage of required personnel is necessary for a Prime BEEF team to be able to successfully undertake the full wartime mission for which it was designed?

_____%

8. What minimum percentage of required equipment and supplies is necessary for a Prime BEEF team to be able to successfully undertake the full wartime mission for which it was designed.

_____%

9. Please rank-order the following reported resource area C-levels to reflect which one you think is the most accurate, second most accurate and least accurate (most accurate = 1, second most accurate = 2, least accurate = 3).

_____Equipment and Supplies C-level

_____Personnel C-level

_____Training C-level

10. There are several methods that could be used to estimate the combat readiness of a Prime BEEF team. Please rank order the following possible methods with respect to their ability to provide an accurate estimation of a Prime BEEF team's level of readiness (1 = best ability,through 4= worst ability).

_____Mission Capability Inspection ratings

_____SORTS report C-levels

_____Major Exercise Results/Evaluations

_____Eglin, Field 4 training performance

Please complete the following questions by marking the appropriate answer.

11. How much experience do you have in the preparation and/or signing of the Prime BEEF readiness report (SORTS or UNITREP)?

____ I have no experience
____ less than 6 months
____ 6 months but less than 1 year
____ 1 year but less than 2 years
____ 2 years but less than 4 years
____ 4 years or more

12. What position do you hold within Base Civil Engineering?

____ Base Civil Engineer ____ Prime BEEF Manager

13. What is your grade?

____ Colonel ____ Lt. Colonel ____ Major
____ Captain ____ 1st Lt. ____ 2nd Lt. ____NCO

14. To which Major Air Force Command do you belong?

___Space Comm. ___AFLC ___AFSC ___ATC

___MAC ___SAC ___TAC ___Other

15. In which deployments have you participated as a Prime BEEF team member (excluding annual bivouac or Field 4 training)?

____None ____Vietnam ___Bright Star ____Team Spirit

___Other(s), please specify_____

Please use the space below the following question to write your answer. Continue your answer on the reverse side if necessary. Any of your thoughts on this matter would be appreciated.

16. What could/should the Air Force and/or major commands do to enhance the accuracy and validity with which the readiness of Prime BEEF teams is reported?

Please return the completed questionnaire in the attached envelope. Use official mail as appropriate.

Appendix C: SAS Computer Program

```
*This computer program was adapted from a similar program
written by Professor Daniel E. Reynolds, Department of
Mathematics, School of Engineering, Air Force Institute of
Technology (AU), Wright-Patterson AFB, OH.

options linesize=75;
/*
   This IML PROGRAM is designed to compute and print the
   results of a TWO-TAIL, TWO SAMPLE T-TEST.

   The user should provide (by modifying the appropriate
   lines of code) the following:

   (1) The Hypothesized Delta Values (HYPDELTA)
   (2) The Set of Alternative Delta Values for which
       the Power Function is to be computed (ALTDELTA)
       and ESTIMATES FOR TRUE STANDARD ERROR OF THE
       SAMPLING DISTRIBUTION OF THE DIFFERENCES OF THE
       TWO POPULATION MEANS to be used for power
       computations. (SIGDELH)
   (3) The Significance Level of the Test (ALPHA)
   (4) The MEANS and STANDARD DEVIATIONS of the two samples
       (MEANX,MEANY,SSTDX,SSTDY)
   (5) The SIZE of the Samples of X and Y (SIZEX,SIZEY).
     */
proc iml;
    start tsttest;
/*
  This IML routine carries out a standard two-sample t-test
  using either sample data or raw data...as indicated by the
  user
*/
     direct="TWO";
     datatype="SAM"; /* INDICATES SAMPLE STATS ARE USED */
     hypdelta = 0; /* Enter the Hyp. Differences of Means */
     alpha=0.05; /* Enter the Level of Significance */
     meanx =      ;  /* Input means and std. dev.'s */
     meany =      ;
     sstdvx =     ;
     sstdvy =     ;
     sizex =      ;
     sizey =      ;

     /* Now compute the Critical Value of the Test Statistic
     and its Computed Value,  and make a decision and report
     the associated P-Value for the Test
     */
```

```
   if direct = "TWO" then do;
      df = sizex + sizey -2;
      tcritl = tinv(alpha/2,df);
      tcritu = tinv(1-alpha/2,df);
        ssigpool = sqrt(((sizex-1)*sstdvx2 +
                    (sizey-1)*sstdvy2)/(sizex+sizey-2));
      tcomp = ((meanx-meany) - hypdelta)/
                     (ssigpool*sqrt(1/sizex + 1/sizey));

      if tcomp <= 0 then probv = 2*probt(tcomp,df);
      if tcomp > 0 then probv = 2*(1-probt(tcomp,df));

    print "================================================";
    print "VALUES FOR MAKING DECISION ABOUT TWO-SAMPLE T-TEST";
    print "     FOR A TWO-TAIL TEST";
    print "================================================";
    testmat=tcritl||tcritu||tcomp||alpha||probv;
    colh={"T-CRITICAL-L" "T-CRITICAL-U" "T-COMPUTED"
          "ALPHA" "PVALUE"};
    print testmat (|colname=colh|);

  end;
finish; /*END OF THE TSTTEST ROUTINE*/

run;
```

Appendix D: S Computer Program

*This computer program was adapted from a similar program written by Professor Daniel E. Reynolds, Department of Mathematics, School of Engineering, Air Force Institute of Technology (AU), Wright-Patterson AFB, OH.

```
MACRO ztest(
hypmean/?PROMPT   (Hypothesized Value of Mu (MUo)      : )/,
siglev/?PROMPT    (Significance Level of the Test (alpha)
                     : )/,
sampmean/?PROMPT  (Value of the Sample Mean (MU)       : )/,
stdev/?PROMPT     (Known Value of Standard Deviation
                  (sigma) : )/,
sizen/?PROMPT     (Size of the Sample (n)              : )/,
dir/?PROMPT       (Direction of the Test ("L","R", or "T")
                     : )/,


#
# This S Macro executes a test for
# a population mean.  It can be used if
#
#  (1) the observations come from a normal population
#
#  (2) the standard deviation (sigma) is known,
#
#    whatever the sample size
#
# or
#
#    if the sample size is large enough to invoke the
#    Central Limit Theorem and claim the distribution of
#    the sample mean is approximately normal.  This implies
#    the distribution of the Test Statistic z is approximately
#    standard normal.
#


# The TEST STATISTIC is...
#
#      z = (xbar-mu)/(sigma/sqrt(n))
#
```

```
printer(80,40)
({
    ?T(mu)_hypmean
# This asks for the hyp. mean
#
    ?T(siglev)_siglev
# This asks for the significance level
#
    ?T(xbar)_sampmean
# This asks for the sample mean
#
    ?T(sigma)_stdev
# This asks for the sample standard dev.
#
    ?T(n)_sizen
# This asks for the sample size
#
    ?T(dir)_dir
# This asks for the direction of the test
#
#
#   compute z, z-critical and the p-value which can be
#   compared to whatever alpha-level one has selected
#
    ?T(z)_(?T(xbar)-?T(mu))/(?T(sigma)/sqrt(?T(n)))
#
    if (?T(dir)=="L") { ?T(prob)_pnorm(?T(z),0,1)
                        ?T(zcrit)_qnorm(?T(siglev),0,1)}
#
    if (?T(dir)=="T") { ?T(prob)_2*pnorm(-abs(?T(z)),0,1)
                  ?T(zcrit)_abs(qnorm(?T(siglev)/2,0,1))}
#
    if (?T(dir)=="R") { ?T(prob)_(1-pnorm(?T(z),0,1))
                    ?T(zcrit)_qnorm(1-?T(siglev),0,1)}
#
#
 print("")
 print("  ************************************************* ")
 print("  * The following values should be used to make * ")
 print("  *              your final decision              * ")
 print("  ************************************************* ")
 print("")
 print("xbar = ")
 print(?T(xbar))
 print("")
 print("")
 print("sigma = ")
 print(?T(sigma))
 print("")
 print("")
 print("Sample Size is ")
 print(?T(n))
 print("")
 print("")
```

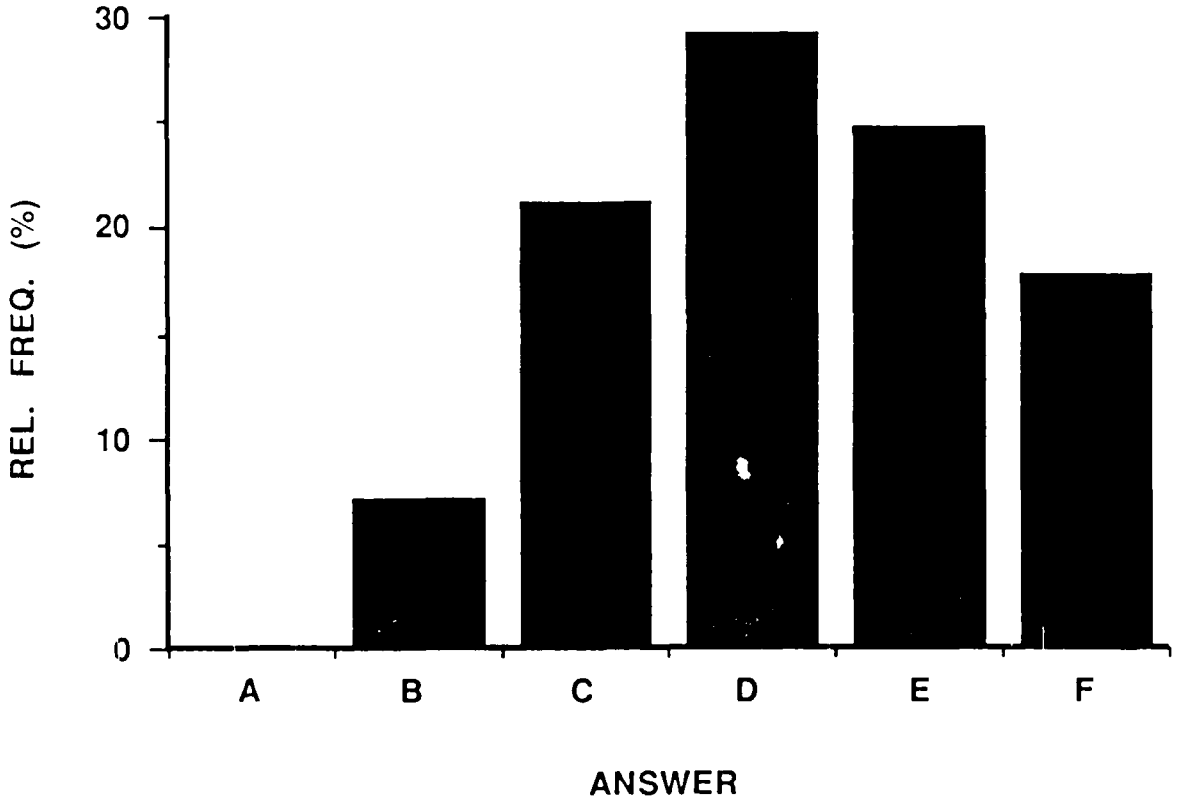
```
 print  (" ------------------------------------------  ")
 if(?T(dir)=="L"){
   print("|       This is a LEFT-TAIL TEST            | ")}
 if(?T(dir)=="T"){
   print("|       This is a TWO-TAIL TEST             | ")}
 if(?T(dir)=="R"){
   print("|       This is a RIGHT-TAIL TEST           | ")}
 print  (" ------------------------------------------  ")
    print("")
 print("  The Computed Value of the Test Statistic Z is   ")
 print(?T(z))
 print("")
 print("")
 print("  The Critical Value of the Test Statistic Z is   ")
 if(?T(dir)=="T") print("  The absolute value of  ")
 print(?T(zcrit))
 print("")
 print("")
 print("  The PROB value is  ")
 print(round(?T(prob),dec_5))
 print("")
 print("")
END
```

Appendix E: Demographic Question Response Histograms

11. How much experience do you have in the preparation and/or signing of the Prime BEEF readiness report (SORTS or UNITREP)?

A = I have no experience
B = less than 6 months
C = 6 months but less than 1 year
D = 1 year but less than two years
E = 2 years but less than 4 years
F = 4 years or more

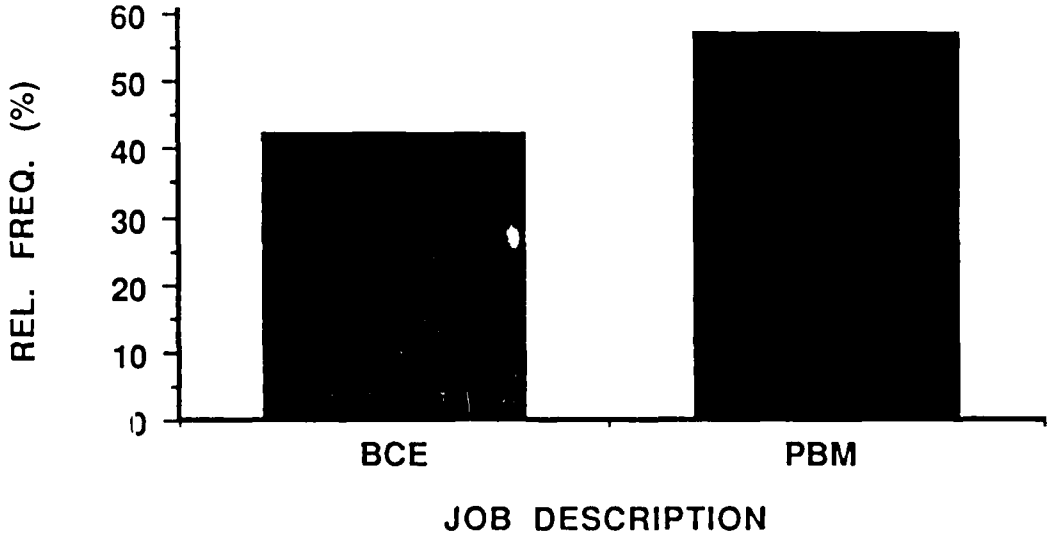
SURVEY QUESTION 11
RESPONSE HISTOGRAM



12. What position do you hold within Base Civil Engineering?

BCE = Base Civil Engineer
PBM = Prime BEEF Manager

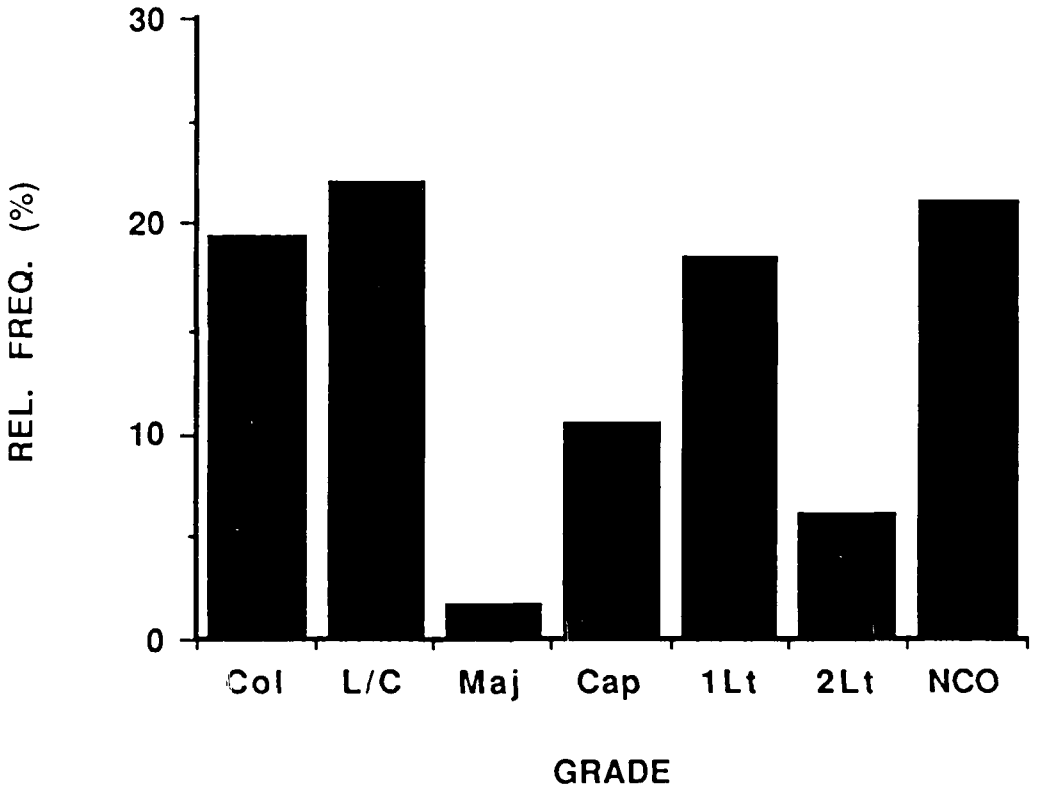
SURVEY QUESTION 12
RESPONSE HISTOGRAM



13. What is your grade?

Col = Colonel
L/C = Lieutenant Colonel
Maj = Major
Cap = Captain
1Lt = First Lieutenant
2Lt = Second Lieutenant
NCO = Non-Commissioned Officer

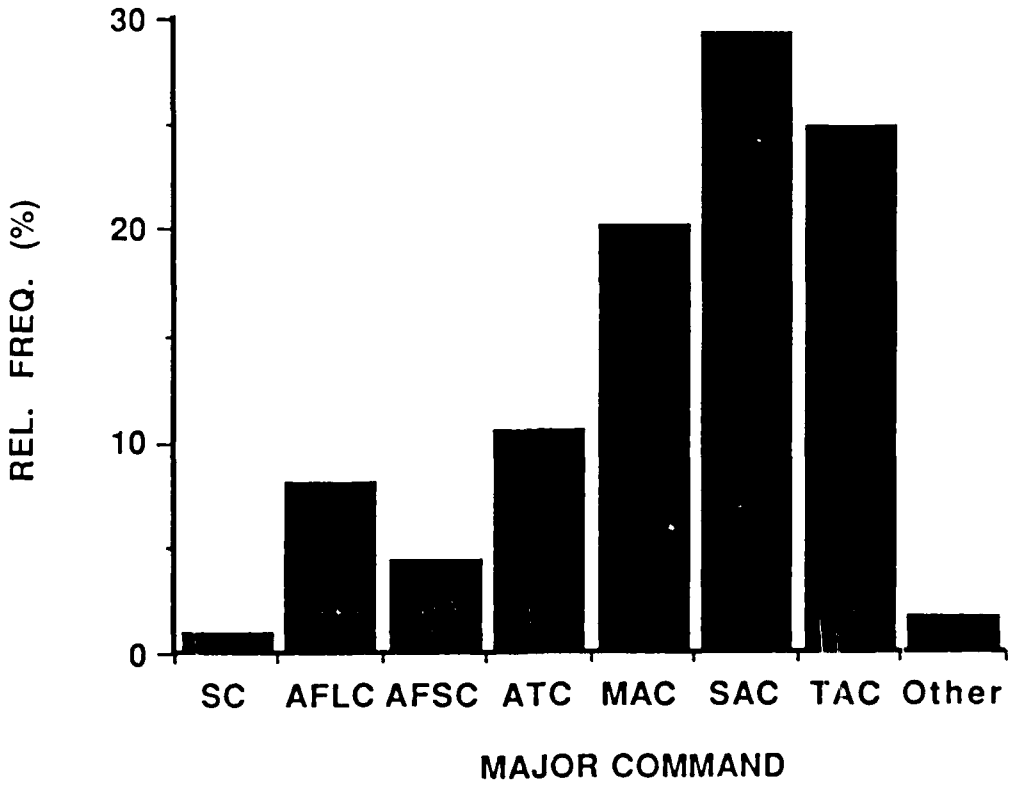
SURVEY QUESTION 13
RESPONSE HISTOGRAM



14. To which Major Air Force Command do you belong?

SC = Space Command
AFLC = Air Force Logistics Command
AFSC = Air Force Systems Command
ATC = Air Training Command
MAC = Military Airlift Command
SAC = Strategic Air Command
TAC = Tactical Air Command
Other = Other

SURVEY QUESTION 14
RESPONSE HISTOGRAM

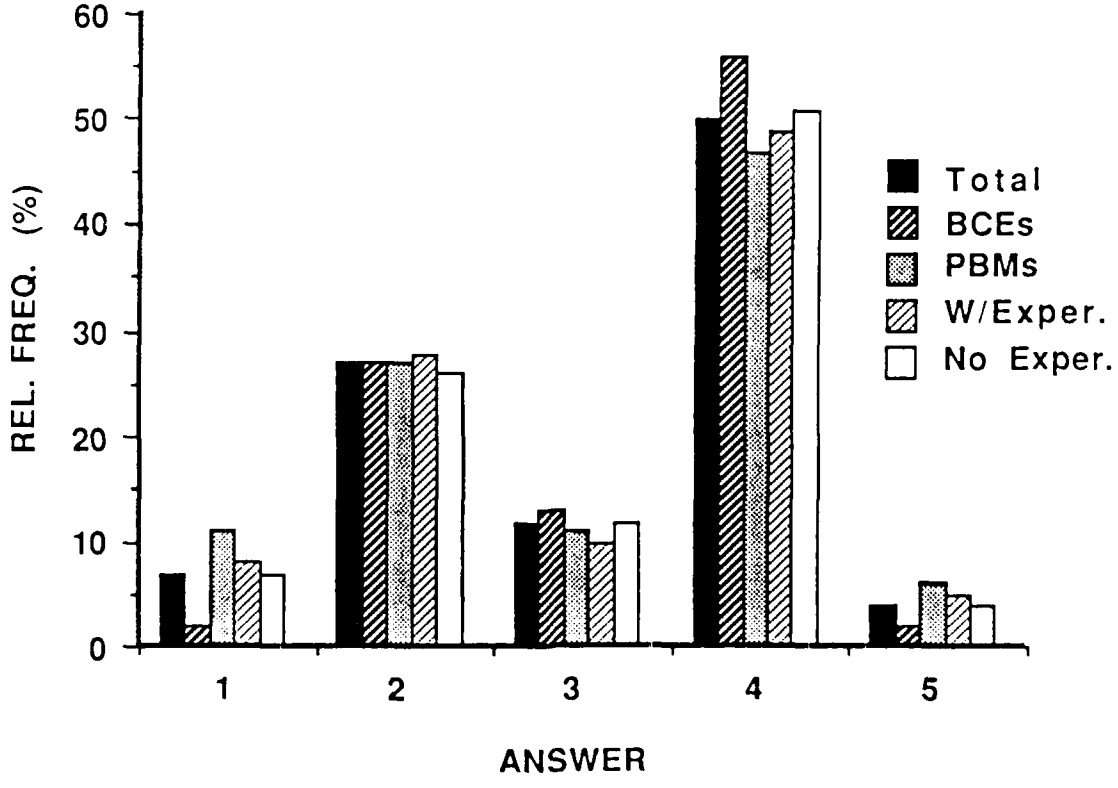


Appendix F: Likert Scale Question Response Histograms

1. *I believe that the Prime BEEF SORTS reports provide an accurate assessment of Prime BEEF readiness to accomplish contingency and combat support missions.*

1 = Strongly Disagree
2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly Agree

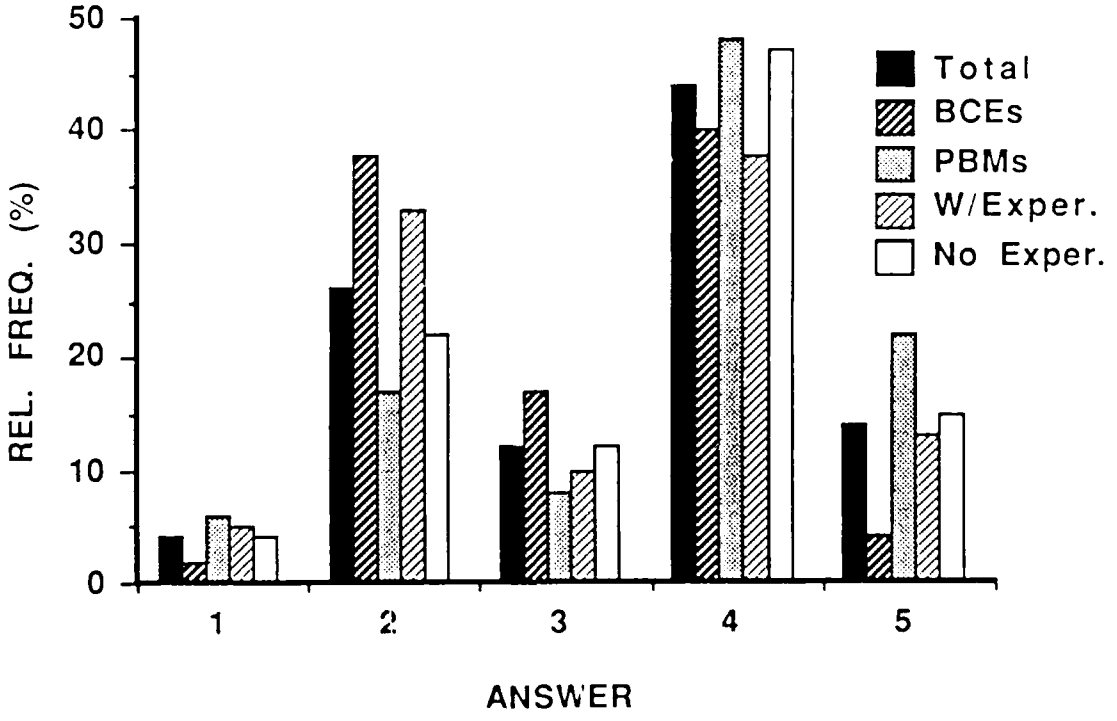
SURVEY QUESTION 1
RESPONSE HISTOGRAM



2. *The current SORTS rating criteria allow a Prime BEEF member to be reported as "fully trained", even though that member's proficiency/knowledge level is not sufficient to successfully accomplish his/her wartime mission.*

1 = Strongly Disagree
2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly Agree

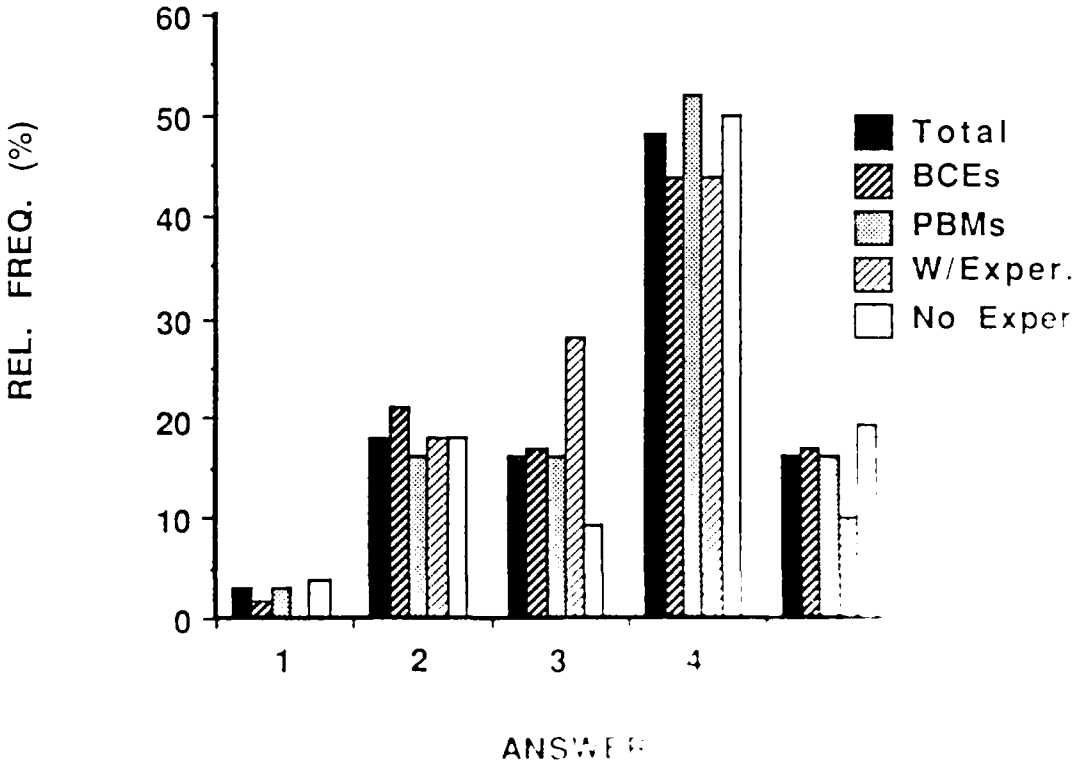
SURVEY QUESTION 2
RESPONSE HISTOGRAM



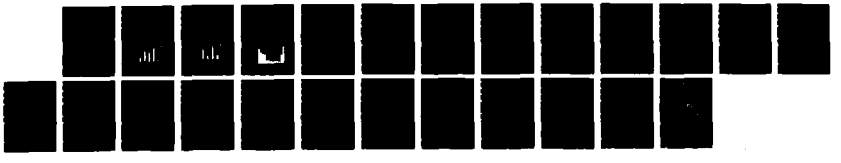
3. *The accuracy and validity of the training C-level could be increased if, before they could be reported as "trained" on the SORTS report, each Prime BEEF team member was required to display minimum proficiency/ knowledge levels for each type of Prime BEEF training.*

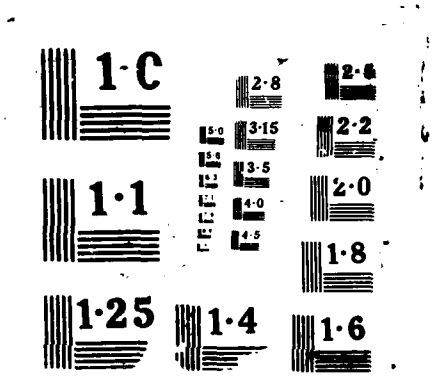
1 = Strongly Disagree
2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly Agree

SURVEY QUESTION 3
RESPONSE HISTOGRAM



AD-A188 270 ANALYSIS OF THE PERCEIVED ACCURACY OF AIR FORCE CIVIL 2/2
ENGINEERING PRIME B (U) AIR FORCE INST OF TECH
WRIGHT-PATTERSON AFB OH SCHOOL OF SYST
UNCLASSIFIED T J SCHLUCKEBIER SEP 87 AFIT/GEN/DEM/87S-22 F/G 13/2 NL

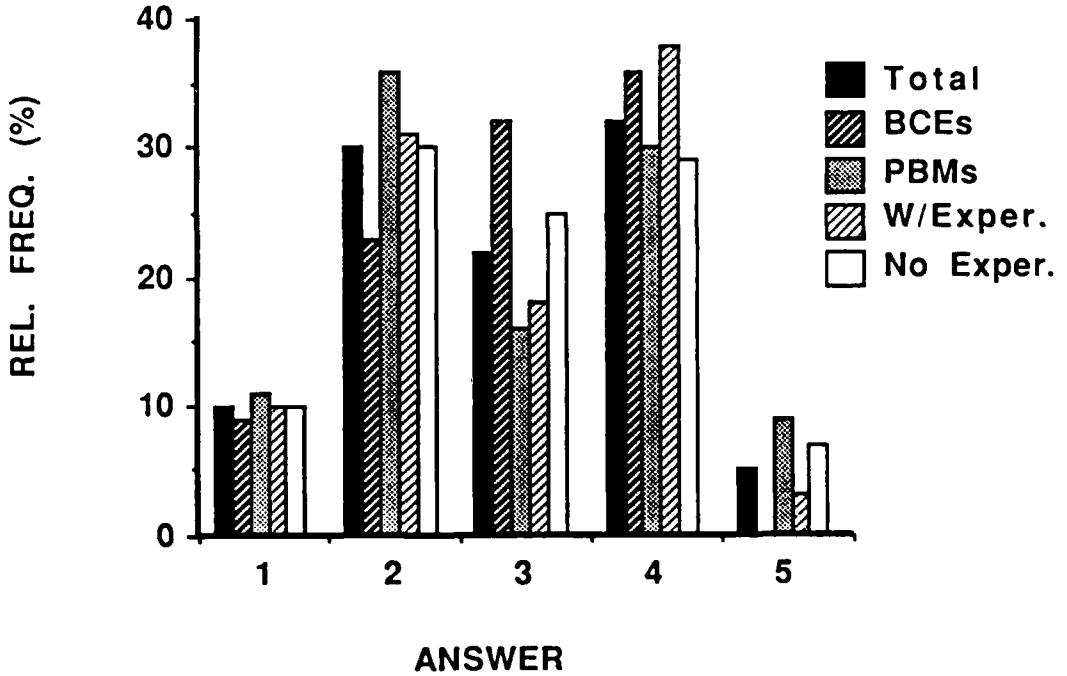



1·C
1·1
1·25
2·8
3·15
3·5
4·0
4·5
2·2
2·0
1·8
1·4
1·6

4. The SORTS report rating criteria are clear, unambiguous, and easily interpreted.

1 = Strongly Disagree
2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly Agree

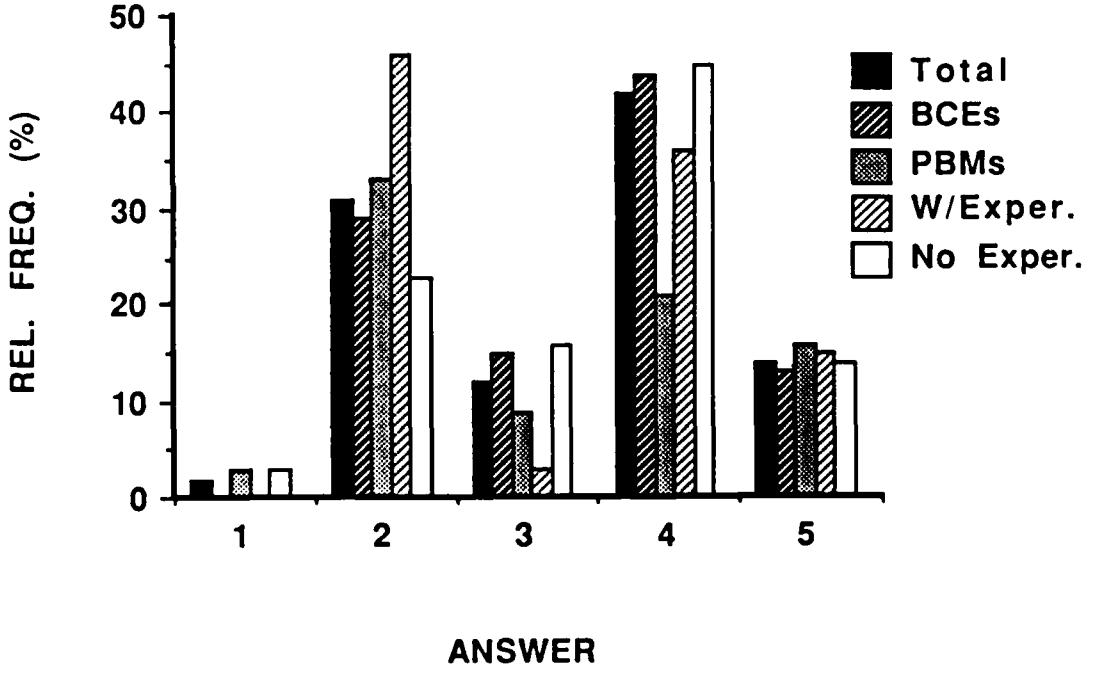
SURVEY QUESTION 4
RESPONSE HISTOGRAM



5. Aside from training, equipment, and personnel, there are other measurable factors that have a major effect on a unit's level of readiness.

1 = Strongly Disagree
2 = Disagree
3 = Neutral
4 = Agree
5 = Strongly Agree

SURVEY QUESTION 5
RESPONSE HISTOGRAM

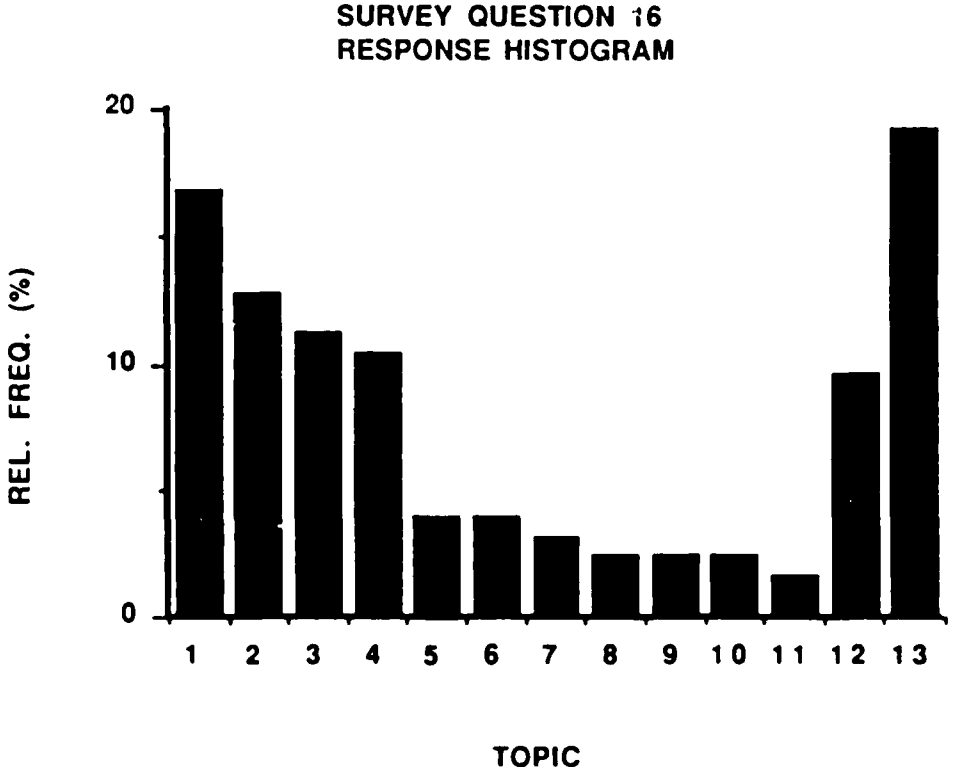


Appendix G: Open Ended Question Frequency Histogram

16. What could/should the Air Force and/or major commands do to enhance the accuracy and validity with which the readiness of Prime BEEF teams is reported?

TOPIC BREAKDOWN

1 = Spend more time on training.
2 = Incorporate a demonstrated ability factor into the SORTS C-level.
3 = Do more deployment-oriented, hands-on training.
4 = SORTS shouldn't be changed since it is the most practical and effective way of estimating readiness.
5 = Eliminate the evaluative nature of the SORTS reports.
6 = Emphasize the use of the Commander's assessment option.
7 = Assign more personnel to help manage the Prime BEEF program.
8 = Validate SORTS via no-notice inspections and staff assistance visits.
9 = Do not count unfilled positions as untrained.
10 = Standardize reporting procedures across the major commands.
11 = Create more/better reason codes.
12 = Miscellaneous.
13 = No comment.



Appendix H: Selected Responses to Survey Question 16

16. What could/should the Air Force and/or major commands do to enhance the accuracy and validity with which the readiness of Prime BEEF teams is reported?

TOPIC 1: Spend more time on training.

--Increase the amount of current training requirements.

--Increase the amount of training and the quality and type of training.

--In the area of training, the frequencies are not adequate. Although a squadron meets yearly requirements and portrays a C-1 rating, this rating may be inaccurate. A yearly requirement for TQT, RRR and CWDT is nowhere enough.

--There needs to be more training time allotted. At most bases the real reason C.E. has blue suiters is lost on most people. We spend far too much time worrying about the non-wartime jobs on base. More training time needs to be supplemented with actual major exercises or more realistic home base exercises.

--The frequency of training required does not really make me feel comfortable to go into a high threat area with chemicals and successfully perform our mission. Once/year training is not enough.

--Devote more time (official) to training, say 20% to 25% of each week.

TOPIC 2: Incorporate a demonstrated ability factor into the SORTS C-level.

--We need to add a "field experience" factor to be incorporated for units that have deployed on "real world" exercises. Also could incorporate the results of ORI's.

--Conduct training exercises annually which evaluates capability to support wartime mission. Rating can go up if follow up by Command demonstrates improved capability.

--Strong leadership and an ability to make decisions goes a long way in making Prime BEEF a success in the field. How do you report this? I think the only measure is by exercising and evaluating realistic field exercises.

--Incorporate MCI, ORI inspection grades into the C-ratings. Both SORTS, and inspections grade personnel. training & equipment so let's tie them together.

--The key is to make CE units function as a unit in a real world scenario & evaluate them based on their performance. This gives a true picture of level of readiness as opposed to image created on paper.

TOPIC 3: Do more deployment-oriented, hands-on training.

--Going to Eglin once in two years and getting stick time on equipment that's not available anywhere else, or working water purification units etc., every two years just doesn't get it.

--Train more people at Eglin Field 4 or at fully equipped regional training centers. It the training given is comprehensive and professionally delivered, the troops will be ready to serve. Nothing beats hands on training! Nothing.

--Have more realistic training exercises. We tend to simulate too much due to lack of proper equipment or concern over public image.

--The problem is not with the reporting instrument. The problem is we don't do realistic training on state-of-the-art equipment or procedures. Once a year at Eglin doesn't make anyone combat qualified.

--Semiannual participation in major exercises such as Team Spirit, Bright Star, etc.! Only deployment as a full team will ensure readiness capability in real world support exercises.

TOPIC 4: SORTS shouldn't be changed since it is the most practical and effective way of estimating readiness.

--"The mission of the Air Force is to organize, train and equip..." Those three items are reflected fairly well on present SORTS. There are so many other minor variables that a more detailed SORTS would be:
1) less meaningful
2) a real pain to fill out.

--SORTS is the best we can do without far more elaborate monitoring systems.

--SORTS (as bad as it is) is probably the best reporting method. At least it is quantifiable.

--SORTS seems to get the job done given the requirement for monthly evaluations.

--Basically, it's a good report. Will need to be revamped when we reposture.

TOPIC 5: Eliminate the evaluative nature of the SORTS reports.

--If personnel, through the chain, could deemphasize SORTS as a "report card", a great deal more could be accomplished.

--Use the ratings as an indicator primarily and not as a "club" to fire commanders of units who honestly report other than C-1. In some instances, politics dictates that units always report C-1 even though conditions exist that don't meet a true C-1 rating.

TOPIC 6: Emphasize the use of the Commander's assessment option.

--Make sure the subjective analysis of the BCE is continued as an important input to the overall SORTS rating. While a team may be different in training, tools and some AFSC's - only the BCE/Cmdr. can assess the overall abilities of the team.

--Provide a simple (non-regulatory) guide to CES Commanders on things to take into consideration when deciding whether or not to invoke commander's judgement.

TOPIC 7: Assign more personnel to help manage the Prime BEEF program.

--No other action will help better than to improve manpower resources in readiness divisions. Training requires effort to upgrade; current manpower authorizations are fully tasked just to maintain the program, much less make major improvements. Training is not quality training at home station - therefore training is not valid.

TOPIC 8: Validate SORTS via no-notice inspections and staff assistance visits.

--An annual visit to validate SORTS would eliminate a lot of the pencil whipping. A major IG inspection only comes around every 2 to 3 years and too many discrepancies can occur.

TOPIC 9: Do not count unfilled positions as untrained.

--Revise training criteria to reflect the percentage trained by comparing to assigned rather than show it in comparison to training required for a UTC. In other words, do not have vacancies go against the training shortfall.

TOPIC 10: Standardize reporting procedures across the major commands.

--There should be one way to do the report. Each command post interprets AFR 55-15 a different way.

TOPIC 11: Create more/better reason codes.

--More accurate JCS reason codes.

TOPIC 12: Miscellaneous.

--Read the UNITREP/SORTS product and contact PB units that show unacceptable or consistently low ratings to determine what solutions can be reached to alleviate problems.

--Have HQ tie into local computers to obtain raw data, then HQ process data (by computer) for eval. Drop the commander's option.

--Do away with substitution rules.

--Tie training to actual OPLAN taskings.

--Provide additional training equipment- particularly vehicles that will be available at deployed location and all runway repair training kits.

Appendix I: Survey Instrument Data

Resp.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9-A	Q9-B	Q9-C
1	3	5	5	3	2	500	90	250	1	2	3
2	2	4	4	4	2	200	80	200	2	1	3
3	2	3	4	4	4	105	90	105	2	1	3
4	4	4	5	4	4	90	90	95	1	2	3
5	4	4	5	4	3	75	75	90	2	1	3
6	2	5	5	4	5	75	85	80	3	1	2
7	4	4	5	3	4	150	90	90	2	1	3
8	2	5	5	3	5	80	75	80	1	2	3
9	4	4	5	3	4	80	80	80	2	1	3
10	2	5	5	3	5	80	75	80	1	2	3
11	1	5	4	2	4	80	90	150	2	3	3
12	1	5	5	2	5				2	1	3
13	2	4	5	1	2	80	85	100	2	1	3
14	4	4	4		4	70	90	100	2	1	3
15	4	3	4	2	2	75	90	100	2	1	3
16	3	4	4	3	4	100	85	100	2	1	3
17	3	4	4	1	5	90	90	95	1	2	3
18	5	3	4	5	5	80	90	95	2	1	3
19	4	4	4	2	2	70	85	95	2	1	3
20	4	2	4	4	2	95	90	95	2	3	1
21	4	1	4	3	2	85	90	90	1	2	3
22	2	5	4	4	5	85	80	90	1	2	3

Resp.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9-A	Q9-B	Q9-C
23	2	4	4	1	4	80	80	90	2	1	3
24	4	2	4	4	4	85	90	90	1	2	3
25	3	4	4	4	3	85	85	90	3	1	2
26	4	3	4	4	5	80	80	87.5	1	2	3
27	2	4	4	2	4	85	85	85	2	1	3
28	4	3	4	3	4	85	80	82.5	2	1	3
29	4	4	4	3	4	85	75	80	2	1	3
30	2	4	4	2	4	150	80	80	1	2	3
31	4	2	4	4	4	75	80	50	3	1	2
32	1	5	3	4	5	75	89	150	1	2	3
33	2	4	3	1	2	150	90	110	2.5	1	2.5
34	2	4	3	1	2	150	90	110	2.5	1	2.5
35	2	4	3	2	2	100	12.5	100	1	2	3
36	5	3	3	4	2	100	90	100	1	3	2
37	2	4	3	2	2	75	90	95	1	2	3
38	2	4	3	4	5	85	80	90	2	1	3
39	4	2	3	2	3	85	85	85	2	1	3
40	2	4	3	2	2	75	80	85	1	3	2
41	4	4	2	2	4	75	80	110	2	1	3
42	5	4	2	4	4	89	85	95	2	1	3
43	4	2	2	3	4	70	90	95	2	1	3
44	3	4	2	3	4	90	90	95	3	1	2
45	4	4	2	4	2	80	80	90	2	1	3
46	2	2	2	1	4	75	80	85	1	3	2
47	4	4	2	1	3		75	80	2	1	3

Resp.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9-A	Q9-B	Q9-C
48	4	1	1	5	1	50	85	100	1	2	3
49	4	2	1	3	3	60	75	80	1	2	3
50	4	2	2	2	2	90	90	90	3	2	1
51	4	2	4	3	4	90	90	90	1	2	3
52	4	3	4	2	5	80	90	90	2	1	3
53	4	4	4	3	3	90	90	90	1	2	3
54	4	2	2	4	2	50	90	90	2	1	3
55	4	2	4	4	2	100	90	90	3	1	2
56	4	3	2	4	4	87.5	90	90	2	1	3
57	4	1	4	2	2	90	90	90	1	2	3
58	4	4	5	3	4	80	90	90	3	2	1
59	4	5	4	4	4	75	90	90	1	2	3
60	4	3	4	3	4	85	90	90	1	2	3
61	2	4	4	2	4	200	90	90	2	1	3
62	4	2	3	4	2	90	90	90	3	2	1
63	4	2	5	4	2	90	90	90	2	1	3
64	4	2	3	3	4	75	90	90	1	2	3
65	4	2	3	4	2	80	90	90	2	1	3
66	2	4	2	2	3	150	90	87.5	1	2	3
67	4	2	2	4	3	60	90	85	3	1	2
68	2	4	4	4	4	90	90	85	1	2	3
69	4	2	4	3	2	60	90	80	2	1	3
70	4	3	2	2	2	70	90	70	2	1	3
71	1	2	3	2	2	90	90	70	1	3	2
72	2	4	4	5	4	75	90	50	1	2	3
73	2	2	2	4	2	90	90		1	3	2

Resp.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9-A	Q9-B	Q9-C
74	4	3	4	2	2	85	93	93	1	2	3
75	2	4	4	1	5	300	95	150	2	1	3
76	2	4	3	5	4	80	95	110	2	1	3
77	4	2	3	4	2	90	95	100	2	1	3
78	4	1	4	4	4	70	95	100	1	2	3
79	2	4	4	2	4	100	95	100	1	2	3
80	4	2	4	2	5	80	95	98	2	1	3
81	4	3	4	2	3	90	95	95	2	1	3
82	3	4	2	2	2	75	95	95	1	2	3
83	4	4	4	1	2	80	95	90	2	1	3
84	4	4	2	2	3	80	95	85	2	1	3
85	3	2	4	2	3	50	95	75	1	2	3
86	4	2	2	3	2	90	95	75	1	2	3
87	1	4	4	2	4	110	100	200	3	1	2
88	4	4	5	4	4	150	100	200	2	1	3
89	3	5	4	4	2	125	100	125	1	3	2
90	1	5	4	2	2	200	100	120	1	2	3
91	3	2	4	3	3	85	100	110	3	1	2
92	5	4	4	5	2	100	100	100	3	1	2
93	3	2	2	4	4	133	100	100	3	2	1
94	1	1	4	1	5	50	100	100	2	1	3
95	2	4	3	2	4	100	100	100	3	1	2
96	4	4	3	2	4	75	100	100	1	3	2
97	5	5	5	5	1	100	100	100	1	2	3
98	4	2	4	3	4	75	100	100	2	1	3
99	2	5	1	2	5	80	100	100	1	2	3

Resp.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9-A	Q9-B	Q9-C
100	4	4	5	4	4	100	100	100	2	1	3
101	2	4	4	4	2	90	100	100	2	1	3
102	4	4	2	2	3	75	100	100	1	3	2
103	4	2	2	2	4	100	100	100	1	2	3
104	1	5	4	1	4	90	100	95	2	1	3
105	3	2	4	2	4	90	100	95	2	1	3
106	2	4	4	3	4	90	100	90	2	1	3
107	4	2	4	4	4	85	100	90	3	2	1
108	4	4	5	3	5	25	100	80	2	1	3
109	4	5	4	3	4	200	100	80	2	1	3
110	3	4	3	3	4	20	110	200	3	2	1
111	4	3	5	4	4	150	120	120	2	1	3
112	2	4	4	4	4	180	130	85	1	2	3
113	3	5	5	2	2	150	150	150	1	2	3

Resp.	Q10-MCI	Q10-SORTS	Q10-Ex.	Q10-Eg.	Q11	Q12	Q13	Q14	Q15
1	2	3	1	4	5	0	3	7	1
2	3	4	1	2	3	1	5	4	0
3	3	4	2	1	4	1	5	5	1
4	4	2	3	1	4	0	2	8	0
5	3	4	2	1	5	1	5	4	0
6	2	4	3	1	3	0	2	4	0
7	3	4	1	2	3	1	5	6	0
8	4	3	1	2	3	0	2	7	0
9	3	4	2	1	2	0	0	6	0
10	4	3	1	2	6	1	6	7	1
11	4	3	1	1	5	0	3	7	1
12	3	4	2	1	3	1	5	1	0
13	3	4	1	2	3	0	2	6	0
14	4	2	1	3	5	1	6	6	0
15	3	2	1	4	4	0	2	6	0
16	1	3	4	2	6	1	6	6	1
17	1	4	2	3	4	1	6	2	0
18	3	4	1	2	3	0	0	7	0
19	3	4	1	2	1	0	0	5	0
20	4	3	2	1	2	0	0	5	1
21	2	3	1	4	4	0	0	3	0
22	2	4	1	3	2	0	2	7	0
23	3	4	1	2	4	1	5	6	0
24	3	4	2	1	3	0	2	6	0
25	2	4	1	3	6	1	5	7	0
26	2	3	1	4	6	1	6	7	1

Resp.	Q10-MCI	Q10-SORTS	Q10-Ex.	Q10-Eg.	Q11	Q12	Q13	Q14	Q15
27	2	4	1	3	3	1	5	4	1
28	3	4	1	2	5	1	5	7	0
29	1	4	3	2	3	0	1	2	0
30	2	4	3	1	4	0	1	4	0
31	2	3	1	4	6	1	5	7	0
32	3	2	1	4	4	0	0	5	1
33	1.5	4	1.5	3	5	1	6	2	1
34	1.5	4	1.5	3	6	0	0	2	1
35	4	3	2	1	5	1	6	6	0
36	4	3	1	2	6	1	5	6	1
37	1	3	4	2	4	0	3	6	1
38	3	4	2	1	6	1	6	5	1
39	2	4	3	1	4	1	5	4	0
40	4	1	3	2	4	0	2	7	1
41	2	4	1	3	3	0	3	7	1
42	2	3	1	4	5	0	0	5	0
43	3	4	2	1	4	1	5	7	0
44	3	1	2	4	4	1	5	7	0
45	2	3	4	1	5	0	0	4	0
46	4	1	3	2	6	1	6	7	0
47	4	1	2	3	2	0	0	6	0
48	1	4	2	3	6	0	0	5	0
49	4	2	1	3	6	1	5	6	0
50	2	4	3	1	4	0	0	3	1
51	2	4	1	3	6	1	6	5	1
52	4	3	1	2	4	0	2	5	0

Resp.	Q10-MCI	Q10-SORTS	Q10-Ex.	Q10-Eg.	Q11	Q12	Q13	Q14	Q15
53	2	4	1	3	4	0	0	6	0
54	4	1	3	2	5	1	6	7	1
55	1	3	2	4	3	0	0	6	1
56	2	4	1	3	5	0	0	5	0
57	2	4	1	3	4	1	6	5	1
58	4	2	1	3	6	1	6	6	1
59	1	4	3	2	3	0	2	5	0
60	3	4	2	1	4	1	5	6	0
61	2	4	3	1	4	0	0	7	0
62	2	3	4	1	6	0	0	8	1
63	1	4	3	2	5	1	6	5	0
64	3	1	4	2	5	1	5	4	0
65	2	4	3	1	3	0	2	7	1
66	4	3	1	2	5	0	2	3	0
67	1	4	2	3	5	1	5	7	0
68	3	4	2	1	4	0	1	7	0
69	2	4	1	3	6	1	6	2	0
70	2	1	3	4	4	1	4	5	1
71	3	4	2	1	5	0	2	6	0
72	1	3	2	4	4	0	2	6	0
73	2	4	3	1	6	1	6	2	1
74	4	1	2	3	3	1	5	5	0
75	1	3	2	4	5	0	3	5	1
76	4	3	2	1	4	0	1	6	0
77	1	2	3	4	6	1	6	2	1
78	4	1	2	3	4	0	3	5	1

Resp.	Q10-MCI	Q10-SORTS	Q10-Ex.	Q10-Eg.	Q11	Q12	Q13	Q14	Q15
79	2	4	1	3	5	0	0	2	1
80	3	4	1	2	5	1	5	5	1
81	1	2	3	4	5	0	3	7	0
82	2	4	1	3	3	0	2	6	0
83	4	3	1	2	4	0	0	5	0
84	2	3	4	1	3	0	2	4	1
85	3	4	2	1	5	1	6	6	0
86	3	1	2	4	5	1	5	6	1
87	2	1	4	3	4	0	0	4	0
88	1	4	3	2	3	0	0	5	0
89	3	2	1	4	3	0	2	7	0
90	3	4	1	2	2	0	3	3	0
91	4	3	1	2	3	0	3	7	0
92	1	4	3	2	6	0	0	6	1
93	3	4	1	2	3	1	5	7	0
94	3	4	1	2	4	0	3	6	0
95	4	4	1	2	6	1	6	6	0
96	4	3	1	2	3	0	3	5	0
97	2	3	4	1	2	0	2	6	0
98	3	4	2	1	5	1	6	6	0
99	3	4	2	1	4	0	1	6	0
100	1	4	3	2	5	1	6	5	1
101	2	3	4	1	6	1	5	3	0
102	4	3	2	1	5	1	5	6	0
103	4	3	1	2	5	0	0	4	0
104	1	4	3	2	4	0	2	7	1

Resp.	Q10-MCI	Q10-SORTS	Q10-Ex.	Q10-Eg.	Q11	Q12	Q13	Q14	Q15
105	3	1	2	4	3	0	4	6	1
106	2	4	3	1	4	1	6	5	0
107	4	3	2	1	5	0	3	7	1
108	2	3	4	1	5	0	2	2	0
109	3	4	2	1	1	0	1	7	0
110	3	4	2	1	4	0	0	4	1
111	3	4	1	2	3	1	5	7	0
112	2	4	3	1	4	0	1	6	0
113	3	4	2	1	4	0	2	6	0

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This study examined the perceptions of Air Force Civil Engineering Prime BEEF managers and BCEs concerning the Prime BEEF SORTS report's ability to accurately assess the readiness of Prime BEEF teams. Prime BEEF managers and BCEs throughout the CONUS were surveyed to determine their overall perceptions of SORTS report accuracy. The survey responses were analyzed collectively, and with respect to two pairs of treatment groups: Prime BEEF managers and BCEs, and respondents with deployment experience versus respondents without deployment experience.

The results indicated that, when directly confronted with the question, CONUS Prime BEEF managers and BCEs were undecided about whether the SORTS report provided an accurate assessment of Prime BEEF readiness. However, the results also indicated that the respondents tended to agree that the SORTS report did not consider all aspects of readiness, and that the Prime BEEF managers and BCEs did not feel that the SORTS was the best readiness estimating technique. The respondents also perceived a problem with the accuracy of the training C-level based on the lack of training standardization and the absence of proficiency/knowledge level requirements. The respondents consistently recommended significantly higher C-1 readiness level requirements. The results also indicated that the respondents were undecided about the clarity, ambiguity, and ease of interpretation of the SORTS rating criteria. Finally, the results showed that neither job description or deployment experience influenced the perceptions of the Prime BEEF managers and BCEs.

Based on the findings, the study concluded that the SORTS report did not provide an accurate assessment of Prime BEEF readiness, and that the training C-level was the primary source of SORTS report inaccuracy.

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